

Evergreen • East Hills Vision Strategy

Transportation Impact Analysis
Operations Analysis

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1.

Introduction

This report presents the results of the operations analysis portion of the traffic impact analysis conducted for the proposed Evergreen • East Hills Vision Strategy (EEHVS). This report specifically focuses on roadway cross-sections, intersection queueing, signalized and unsignalized intersection operations, pedestrian and bicycle circulation, site access and on-site circulation, effects on surrounding neighborhoods, and an analysis of traffic conditions on Saturday.

The proposed project would change the General Plan land use designations and zonings on multiple sites within the Evergreen • East Hills area totaling approximately 544 acres. The Evergreen • East Hills area generally refers to the portion of the City of San Jose that lies east of U.S. 101 and south of Story Road, excluding properties south of the U.S. 101 / Hellyer Avenue interchange. In addition to the proposed land use changes, the proposed EEHVS also would entail the following actions: adoption of a revised Evergreen Development Policy, revisions to the General Plan roadway network, and adoption of design guidelines for future development in the Evergreen • East Hills area.

If approved, the project would enable development primarily on the following four sites: the former Pleasant Hills Golf Course Property, located on the northeast quadrant of Tully Road and White Road; the Evergreen Valley College Property, located near the northeast quadrant of Yerba Buena Road and San Felipe Road; the Berg / IDS / Legacy Properties, located east of Yerba Buena Road; and the Arcadia Property, located northwest of the Capitol Expressway / Nieman Boulevard intersection (see Figure 1). The EEHVS traffic study includes five different development levels for the study parcels. This operations analysis focuses only on Scenario V, which has the highest number of proposed dwelling units (5,700 units).

This report organizes the operations analysis along specific roadway corridors, with each corridor reviewed in a separate chapter. The study area and the corridors within it are displayed in Figure 1. The roadway corridors are as follows:

- Story Road
- Ocala Avenue / Marten Avenue
- Tully Road
- Quimby Road

- Aborn Road
- Yerba Buena Road
- King Road / Silver Creek Road
- Nieman Boulevard
- Capitol Expressway – North of Quimby Road
- Capitol Expressway – South of Quimby Road
- White Road / San Felipe Road
- Mt. Pleasant Road / Ruby Avenue
- Murillo Avenue

In this study, each corridor is reviewed for roadway cross-section, intersection queueing, signalized and unsignalized intersection operations, and pedestrian and bicycle circulation, and Intelligent Transportation Systems (ITS, described below). Where applicable, freeway interchange operations are reviewed. Every intersection within each corridor has received some level of review. Those intersections with potential traffic issues specifically are listed and discussed in this report. Background and required transportation improvements are discussed as they affect each corridor. Project traffic volumes are presented, and traffic impacts are identified, where they occur. There is a separate chapter that examines weekend traffic operations.

Transportation improvement recommendations are made for each corridor, where appropriate, and are summarized at the end of each chapter. There is an additional area-wide summary of these same recommended improvements that follows the corridor chapters. Potential transportation improvements are organized into four categories:

Required Transportation Improvements are those projects that are assumed to be fully funded by an EEHVS financing plan.

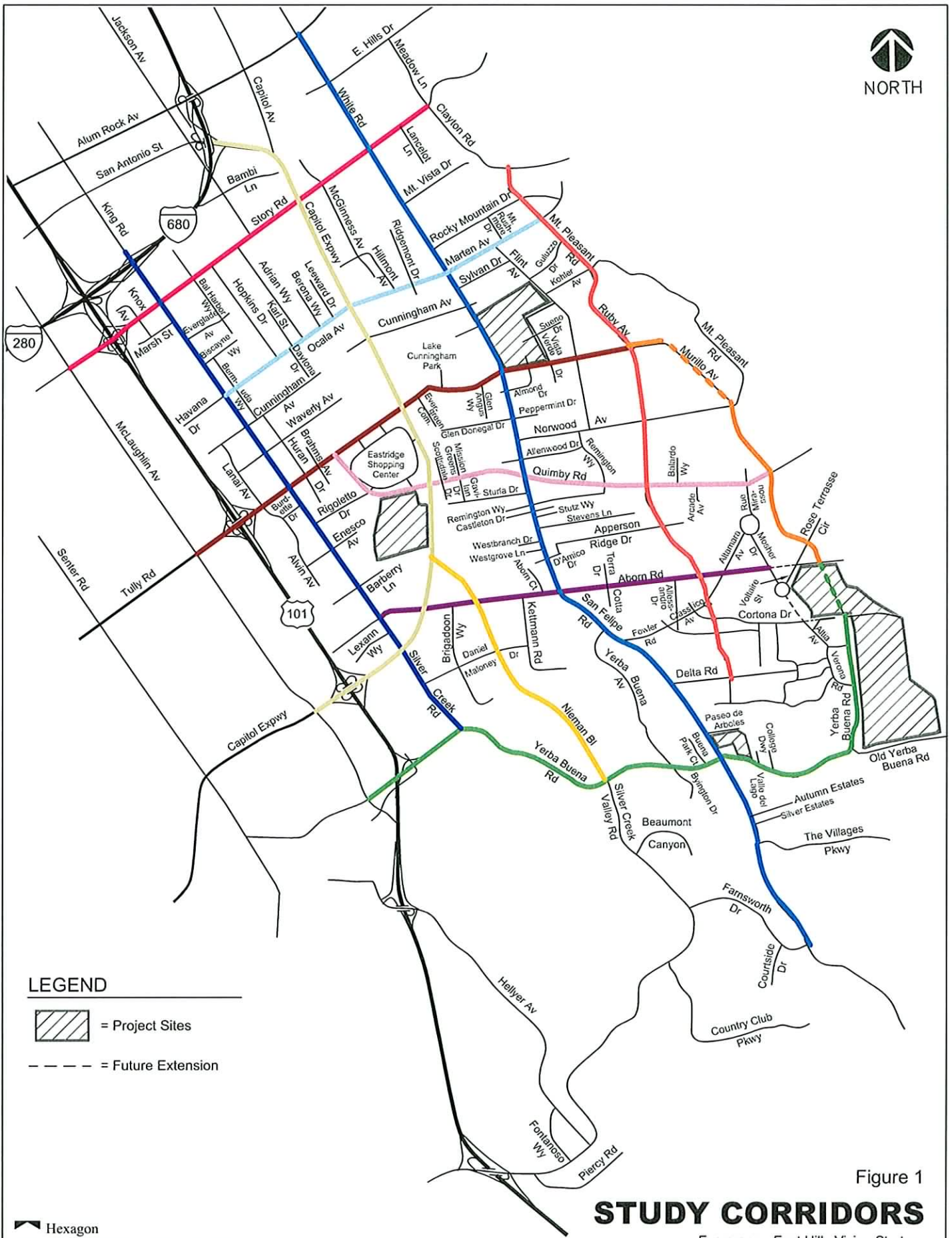
Recommended Transportation Amenities are those projects identified, which may receive funding through an EEHVS financing plan, but have undetermined financing. These may include such improvements as intersection improvements, new traffic signals, new bicycle lanes, and ITS.

Mitigations from EIR are transportation improvements beyond the Required Transportation Improvements and that are necessary to mitigate significant transportation impacts identified through the EIR process.

Projects labeled as being *Required as Part of Site Development* are those that have been identified as being required to address the access needs of specific development sites.

Intelligent Transportation Systems (ITS) improvements bear further description. ITS improvements include such measures as signal interconnections and remote intersection monitoring and management. The city of San Jose Department of Transportation has determined that ITS measures may potentially improve capacity by up to 15% and reduce traffic delays by up to 20%. Signal interconnection is a prerequisite to ITS implementation. Approximately 50% of traffic signals in San Jose are interconnected. Past ITS system implementations have reduced travel times by an average of 20%.

There are two chapters discussing access and circulation for the specific EEHVS development sites and traffic volume added to neighborhood streets. These chapters take into account a review of these projects' specific site plans as proposed.



LEGEND



= Project Sites

--- = Future Extension

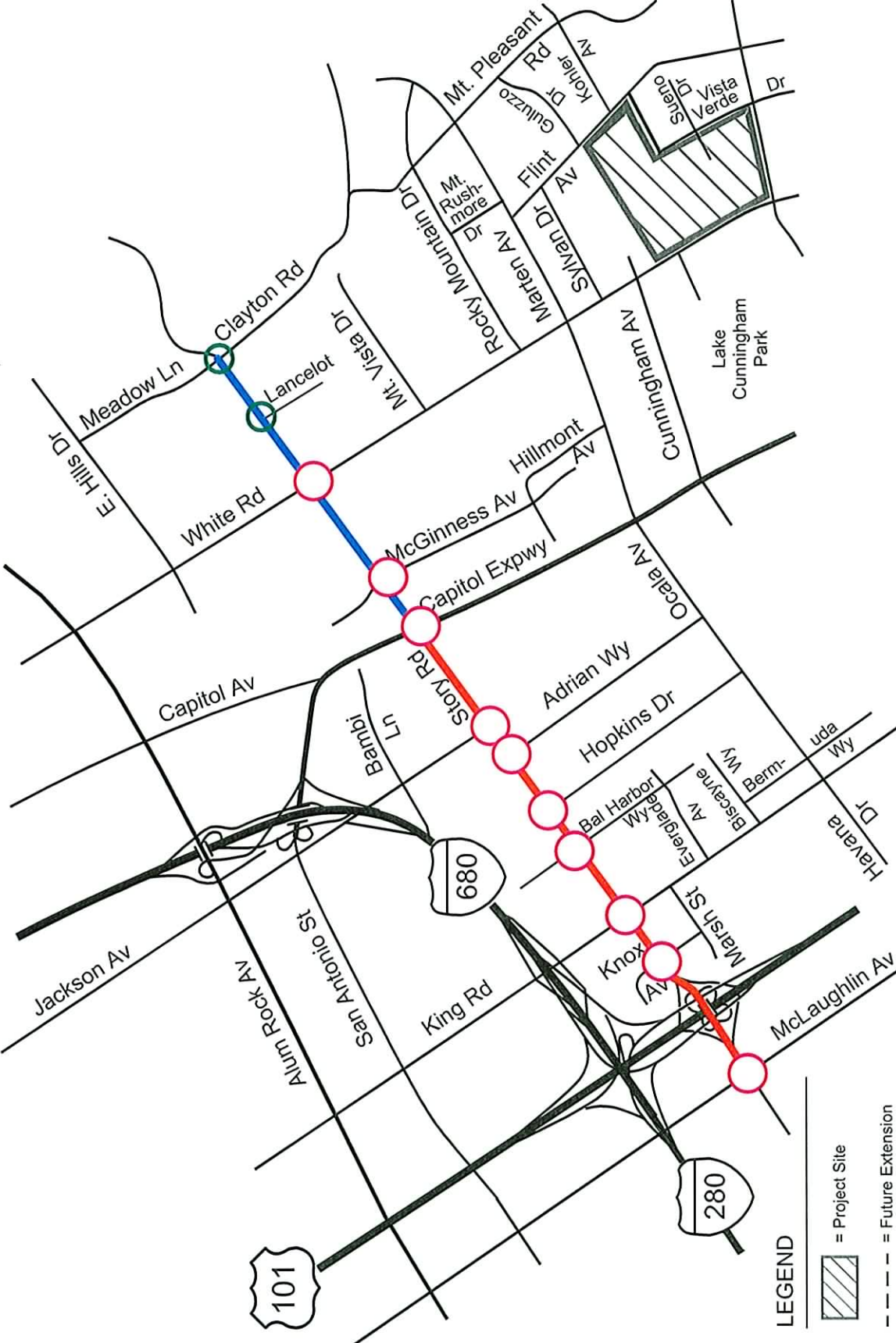
Figure 1
STUDY CORRIDORS
Evergreen • East Hills Vision Strategy

2. Story Road Corridor

This chapter describes the transportation system in the Story Road Corridor, including roadway cross-section, signalized and unsignalized intersection operations, intersection queueing, freeway interchange operations, and pedestrian and bicycle facilities. The Story Road Corridor in the Evergreen • East Hills area extends from the McLaughlin Avenue and Story Road intersection eastward approximately three miles to its intersection with Clayton Road (Figure 2), providing access to commercial areas, housing areas, and one school: The National Hispanic University on Story Road east of White Road.

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- GP Street Designation**
- = Arterial (115'-130')
 - = Arterial (80'-106')
 - = Major Collector

- Study Intersections**
- = Signalized
 - = Future Signal
 - = Unsignalized
 - ⬢ = Future Signal

- LEGEND**
- = Project Site
 - = Future Extension

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STORY ROAD CORRIDOR
Evergreen • East Hills Vision Strategy

Roadway Cross-Section

Story Road is a designated six-lane arterial from McLaughlin Avenue to Capitol Expressway and a four-lane arterial from Capitol Expressway to Clayton Road. It includes a full clover-leaf interchange with U.S. 101. From McLaughlin Avenue to Capitol Expressway, Story Road is built as a six-lane arterial with a raised median. Between Capitol Expressway and Lyndale Avenue, it is a five-lane divided roadway (three lanes westbound and two lanes eastbound). East of Lyndale Avenue to White Road, Story Road becomes a four-lane roadway with a two-way left-turn lane. East of White Road to Clayton Road, Story Road is a two-lane road.

Traffic Operations

This section describes existing and future levels of service and queueing at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections and a description of traffic operations at the Story Road / U.S. 101 interchange. The intersections studied along Story Road Corridor are displayed in Figure 2 and are as follows:

Signalized Intersections Analyzed

- *McLaughlin Avenue and Story Road*
- *Knox Avenue and Story Road*
- *King Road and Story Road*
- *Bal Harbor Way and Story Road*
- *Hopkins Drive and Story Road*
- *Adrian Way and Story Road*
- *S. Jackson Avenue and Story Road*
- *Capitol Expressway and Story Road*
- *McGinness Avenue and Story Road*
- *White Road and Story Road*

Unsignalized Intersections Analyzed

- *Lancelot Lane and Story Road*
- *Clayton Road and Story Road*
- *S. Jackson Avenue and I-680 (N)*

Planned / Background Improvements

The following improvements are planned and funded and will occur with other, previously approved projects in Evergreen.

Capitol Expressway and Story Road. Add a third eastbound through lane and a second westbound left-turn lane. (Developer funded)

White Road and Story Road. Add a second southbound left-turn lane. (Developer funded)

LRT Expansion. The Capitol Expressway Light Rail Project is included in the study as a background improvement. The LRT project will necessitate removal of the HOV lanes on Capitol Expressway, leaving three mixed-flow lanes in each direction. The LRT project will include a station at Story Road.

Required Transportation Improvements

Required transportation improvements in the Story Road Corridor consist of the fully funded addition of two signals, as described in a section below. There is an additional required transportation improvement new traffic signal north of Story Rd. on S. Jackson Ave. at I-680 (N), also described below.

Project Volumes

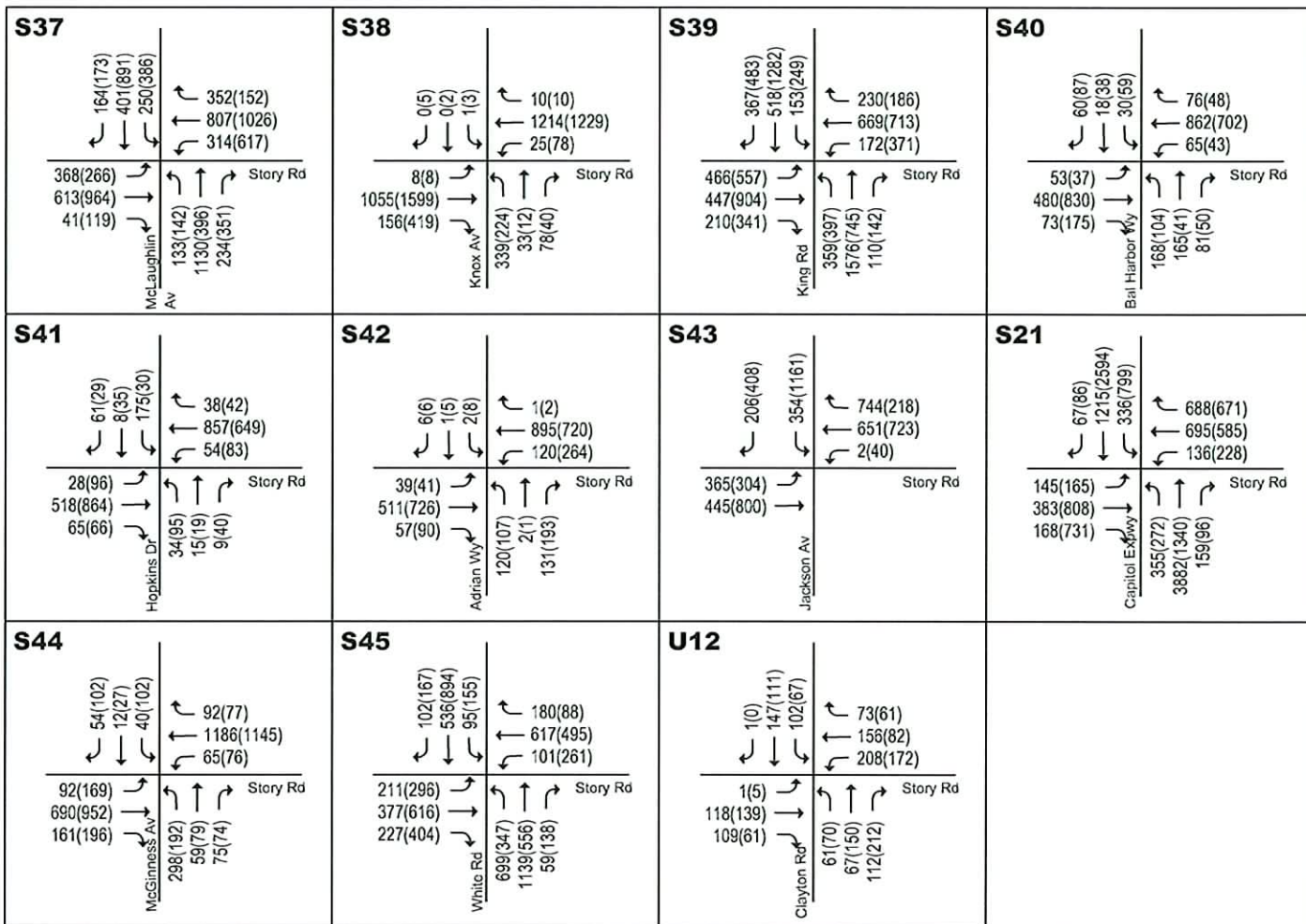
Turning movement volumes under project conditions at studied intersections in the corridor are shown in Figure 3.

Level of Service Analysis

The results show that the intersection of Capitol Expressway and Story Road would operate at LOS F during the AM peak hour and at LOS E during the PM peak hour under project conditions (see Table 1). The other signalized intersections in the corridor are expected to operate at LOS D or better.

Table 1
Story Road Corridor Level of Service Analysis

Intersection	Existing				Background				Project V			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
McLaughlin Ave. and Story Rd.	39.6	D	46.2	D	40.8	D	46.9	D	41.2	D	47.4	D
Knox Ave. and Story Rd.	29.6	C	21.7	C	30.5	C	21.6	C	29.1	C	20.9	C
King Rd. and Story Rd.	43.8	D	47.3	D	41.4	D	46.2	D	42.5	D	47.5	D
Bal Harbor Way and Story Rd.	28.1	C	24.4	C	28.0	C	23.4	C	27.9	C	23.9	C
Hopkins Dr. and Story Rd.	24.5	C	25.6	C	24.2	C	24.9	C	23.7	C	24.5	C
Adrian Way and Story Rd.	18.5	B	24.8	C	18.5	B	24.9	C	18.3	B	24.7	C
Jackson Ave. and Story Rd.	28.6	C	36.1	D	26.2	C	34.7	C	28.6	C	36.1	D
Capitol Expwy. And Story Rd.	60.0	E	54.9	D	47.2	D	53.6	D	121.6	F	71.9	E
McGinness Ave. and Story Rd.	23.1	C	25.2	C	23.5	C	25.0	C	23.1	C	25.2	C
White Rd. and Story Rd.	43.7	D	46.0	D	45.4	D	45.7	D	44.7	D	47.2	D



Legend

XX(XX) = AM(PM) Peak-Hour Volumes

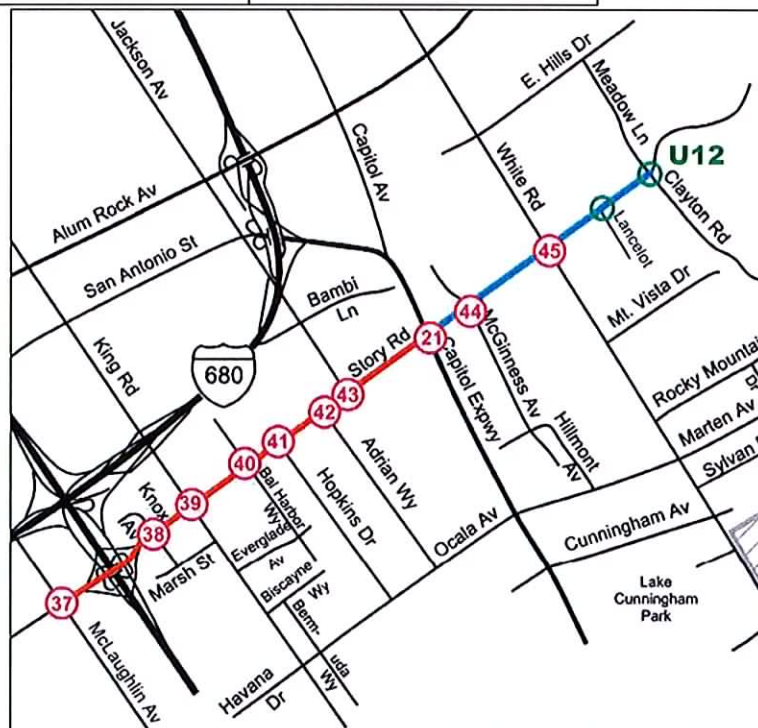


Figure 3

STORY ROAD CORRIDOR PROJECT TRAFFIC VOLUMES SCENARIO V

Evergreen • East Hills Vision Strategy

Project Impacts

The results show that, according to the City of San Jose's level of service standards for signalized intersections, the following intersection would be significantly impacted by the project scenario during the AM and PM peak hours.

Capitol Expressway and Story Road

Impact: This intersection is expected to operate at LOS D during the AM and PM peak hours under background conditions. The added trips as a result of the Evergreen • East Hills Vision Strategy would cause the intersection level of service to degrade to an unacceptable level (LOS E or LOS F) during both the AM and PM peak hours. Based on the City of San Jose's level of service impact criteria, this constitutes a significant impact.

Mitigation: There are no feasible mitigation measures at this intersection. Achieving an acceptable level of service would require adding a fourth through lane on northbound Capitol Expressway and providing free-running right-turns on both the eastbound and westbound approaches of Story Road. Such improvements would require extensive widening of Capitol Expressway, right-of-way acquisition, and modifications to other roadways that front Capitol Expressway. Additional right-of-way approximately 11 feet in width would be needed on the east side of Capitol Expressway from Sussex Drive (approximately 600 feet south of Story Road) to Story Road. The widening of Capitol Expressway along this segment would necessitate converting Kollmar Drive into a cul-de-sac. The acquisition of the necessary right-of-way would reduce the landscaping and parking areas on the commercial property on the southeast quadrant of the Capitol/Story intersection. North of Story Road, additional right-of-way approximately 22 feet in width would be needed along the east side of Capitol Expressway for a distance of approximately 220 feet, reducing the landscaping and parking area on the commercial property on the northeast corner. North of this point, the widening of Capitol Expressway would require shifting the Capitol Expressway frontage road farther east. This would entail acquiring additional right-of-way beginning at 22 feet in width and narrowing to 11 feet in width. At least one of the three buildings adjacent this frontage road would have to be demolished. The fourth northbound through lane could be extended to Capitol Avenue without impacting any properties north of Mervyn's Way. Roadway widening and additional right-of-way approximately 11 feet in width also would be necessary on the west side of Capitol Expressway south of Story Road for a distance of approximately 500 feet. The right-of-way acquisition on this quadrant would reduce the landscaping and parking on the commercial property at the corner and impact at least one single-family residential property that backs up to Capitol Expressway.

Queueing

The adequacy of left turn pocket storage was evaluated for one signalized intersection in the corridor. The number of vehicles in queue was calculated using the TRAFFIX queue length software. Queue lengths in feet were calculated assuming 20 feet per vehicle. Table 2 summarizes the queueing findings.

Existing Conditions

The following intersections were observed to have back-ups out of the turn pockets during peak hours.

Table 2
Story Road Corridor Left-turn Storage Analysis

Intersection	Peak Hour	Mvmt.	Existing			Background			Project Conditions				
			# Lanes	Storage Per Lane	Proposed # Lanes	Storage Per Lane	Vehicle Queue	Required Storage Per Lane	Proposed		Required Storage		
									# Lanes	Storage Per Lane		Vehicle Queue	Storage Per Lane
McLaughlin Avenue and Story Road	AM	SBL	1	300	1	300	14	280	1	300	14	280	Adequate
	PM	SBL	1	300	1	300	23	460	1	300	23	460	Inadequate Install double left turn lanes.
Capitol Expressway and Story Road	AM	SBL	2	440	2	440	22	220	2	440	26	260	Adequate
	PM	SBL	2	440	2	440	40	400	2	440	52	520	Inadequate SBL turn pocket may be extended to provide the necessary storage by removing median and landscaping.
	AM	NBL	2	320	2	320	17	180	2	320	24	240	Adequate
	PM	NBL	2	320	2	320	17	180	2	320	23	240	Adequate

McLaughlin Avenue and Story Road. During the PM peak hour, the southbound left-turn queue often spills out into the through lanes.

Capitol Expressway and Story Road. During the AM peak hour, the southbound left-turn queue often does not clear in a single signal cycle.

During the PM peak hour vehicle queues on eastbound Story Road regularly extend past the unsignalized intersection at Galahad Avenue and through the next intersection at Leeward Avenue; not all vehicles clear during the signal cycle (i.e., some vehicles wait longer than one cycle). The queues block access to the eastbound left- and right-turn pockets. On the westbound approach, left-turn traffic often overflows the turn pocket.

McGinness Avenue and Story Road. During the PM peak hour, large vehicle queues on eastbound Story Road regularly extend past the unsignalized intersection at Kollmer Drive and extend back to Capitol Expressway. The eastbound left-turn pocket spills out blocking the eastbound through movement. Due to the eastbound Story Road through volumes and southbound Capitol Expressway left-turn volumes the roadway segment volume of traffic on Story Road between McGinness Avenue and Capitol Expressway is very high. This high eastbound traffic volume is often unable to clear the intersection in one signal cycle.

White Road and Story Road. In the PM peak hour, the northbound left-turn queue often spills out of the turn pocket; however, all queued vehicles are able to clear the intersection in one cycle. Traffic on the westbound approach frequently queues past the driveway to the shopping center on the northeast quadrant, causing conflicts with eastbound vehicles attempting to turn left into the shopping center.

Project Conditions

The following intersections are projected to have left turn queues longer than the existing turn pockets on one or more legs of the intersections.

McLaughlin Avenue and Story Road. The southbound left turn storage would be inadequate under background and project conditions. Double left turn lanes should be installed in the southbound and northbound directions. Eastbound and westbound lanes will have to be realigned as a consequence.

Capitol Expressway and Story Road. The southbound left turn storage would be inadequate under project conditions. The southbound left turn pockets could be lengthened by cutting into the landscaped median.

Unsignalized Intersection Analysis

The unsignalized study intersections were analyzed to see if signalization or other changes to traffic control would be warranted under existing or project conditions. Peak hour signal warrant checks (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were performed at two unsignalized intersections along the Story Road Corridor. The results of this analysis are displayed in Table 3. The peak-hour signal warrant is met at a particular intersection when existing volumes or projected volumes on the major and minor streets reach a defined threshold. Engineering judgment needs to be exercised to determine that a signal would improve the overall safety and operation of the intersection and would not unduly disrupt traffic flow on the major street. Recommendations from this analysis are made for both intersections.

Story Road / Lancelot Lane and *Story Road / Clayton Road*. These intersections are projected to meet signal warrants under existing and project conditions and a traffic signal should be installed at each intersection as part of the Required Transportation Improvements.

S. Jackson Avenue and I-680 (N). This intersection is projected to meet signal warrants under existing and project conditions and a traffic signal should be installed as part of the Required Transportation Improvements.

Table 3
Story Road Signal Warrants Analysis

Intersection	Existing		Project Scenario V		Recommendations
	AM Peak Warrant Met?	PM Peak Warrant Met?	AM Peak Warrant Met?	PM Peak Warrant Met?	
Jackson and I-680 (N)	Yes	Yes	Yes	Yes	Install signal
Lancelot Lane and Story Road	Yes	Yes	Yes	Yes	Install signal
Clayton Road and Story Road	Yes	Yes	Yes	Yes	Install signal

US 101 / Story Road Interchange Operations

This section describes existing and future operations at the U.S. 101 / Story Road interchange. The EEHVS includes improvements to U.S. 101 and the interchanges in the Evergreen area.

The U.S. 101 Central Corridor Study, which was prepared under the guidance of the VTA, identified a range of improvements that would reduce traffic congestion resulting from merging and weaving conflicts and improve the overall U.S. 101 freeway system performance. This includes eliminating mainline traffic bottlenecks and improving safety. In response to comments made by Caltrans Highway Operations and Design, the project description resulting from this study was refined through further operations analyses. Because the Evergreen • East Hills Vision Strategy would provide the necessary funding for such freeway improvements, they are considered project-sponsored improvements and are thus included in the analysis of project levels of service.

Caltrans and the VTA have prepared a Draft initial Study (IS) / Negative Declaration (ND) for the proposed U.S. 101 operational improvements independent of this project (EEHVS).

Queueing at Freeway Ramp Meters

Ramp meters are installed on all of the U.S. 101 on ramps serving the Evergreen area. Presently, freeway on-ramp meters control freeway entrances for the peak direction of travel only — northbound during the AM peak period and southbound during the PM peak period. Since the Evergreen area is predominantly residential and employment centers are concentrated mostly in areas to the north, the longest ramp meter queues occur at the northbound on ramps during the AM peak hour. The existing maximum queue lengths and delay at northbound U.S. 101 on ramps serving the Evergreen area were measured during the AM peak hour. Table 4 shows existing queue lengths and delay at the Story Road on-ramp.

The analysis shows that, with the addition of traffic generated by EEHVS, delays would increase by about two to three minutes above existing conditions for vehicles entering northbound U.S. 101 from Story Rd.

There are no project-sponsored improvements at this interchange, and the ramp meter rate is assumed to be unchanged from existing conditions.

Table 4

**Maximum Queue Length and Delay at Story Road and Northbound U.S. 101
On Ramp – AM Peak Hour**

	WB Story Road	
	Queue Length (veh.)	Wait Time (min:sec)
Existing Conditions	24	03:30
Background Conditions	25	03:45
Project Conditions		
Scenario V	41	06:00
Scenario V with Improvements	41	06:00

Notes:
Queue times were calculated using the surveyed existing (2004) queue lengths and estimated background and project trips, in combination with the future ramp meter rates obtained from the *Final Draft Traffic Operations Report—US 101 Operational Improvements from I-280/680 to Yerba Buena Road*, Fehr & Peers Associates, Inc., July 2005.

ITS Plan

Intelligent Transportation Systems, or ITS, is the use of communications and computer technology to increase the efficiency of signal operations and reduce delays in the system. The City of San Jose has developed an ITS plan for the Evergreen area. The plan calls for traffic surveillance cameras and signal interconnect systems to be installed via cables, conduit, and trunk lines or wireless links where appropriate. Cameras are planned to be added to four intersections within the corridor:

King Road and Story Road

Jackson Road and Story Road

Capitol Expressway and Story Road

White Road and Story Road

Existing signal interconnect cables are installed on Story Road from U.S. 101 to White Road. The ITS Plan calls for a wireless communication link to be installed on Story Road from White Road to Clayton Road, to connect the traffic signal controller at the Clayton Road and Story Road intersection to the City's ITS system. A wireless link is planned in order to minimize the amount of trenching within the public right-of-way at the end of the communication links along the east foothills (see Figure 4).

Pedestrian and Bicycle Facilities

The corridor was evaluated for pedestrian and bicycle access. Recommendations for improvement are made where appropriate.

Pedestrians

There are sidewalks on both sides of Story Road from McLaughlin Avenue to Lancelot Lane. East of Lancelot Lane, there are no sidewalks. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new sidewalks. The City may want to consider as a candidate for these funds construction of the sidewalk on Story Road east of Lancelot Lane.

Bicycles

No bike lanes exist on Story Road; the City of San Jose Bicycle Network Planning Map shows Story Road as a street for future bike facilities. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new bike lanes. The City may want to consider bike lanes on Story Road as a candidate for these funds.

Summary of Improvements

Project improvements to the Story Road Corridor are as follows (see Figure 4):

Required Transportation Improvements

- Install a traffic signal at the *Lancelot Lane / Story Road* intersection.
- Install a traffic signal at the *Clayton Road / Story Road* intersection.
- Install a traffic signal at the *S. Jackson Avenue / I-680 (N)* intersection.

Recommended Transportation Amenities

- Install double left turn lanes in the southbound and northbound directions of the *McLaughlin Avenue and Story Road* intersection. Eastbound and westbound lanes will have to be realigned as a consequence.
- Lengthen the southbound left turn pockets at the *Capitol Expressway and Story Road* intersection.
- Install ITS cameras at the intersections of *Story Road with King Road, with S. Jackson Avenue, with Capitol Expressway, and with White Road*; and at *S. Jackson Ave. with I-680 (N)* and *with Dobern Avenue*. Install conduit, communication cables and wireless interconnects as appropriate.
- Consider use of EEHVS miscellaneous transportation improvement funds to add sidewalks to Story Road east of Lancelot Lane and to add bike lanes to Story Road.
- Consider a study of potential weekend traffic signal coordination on *Story Road*.

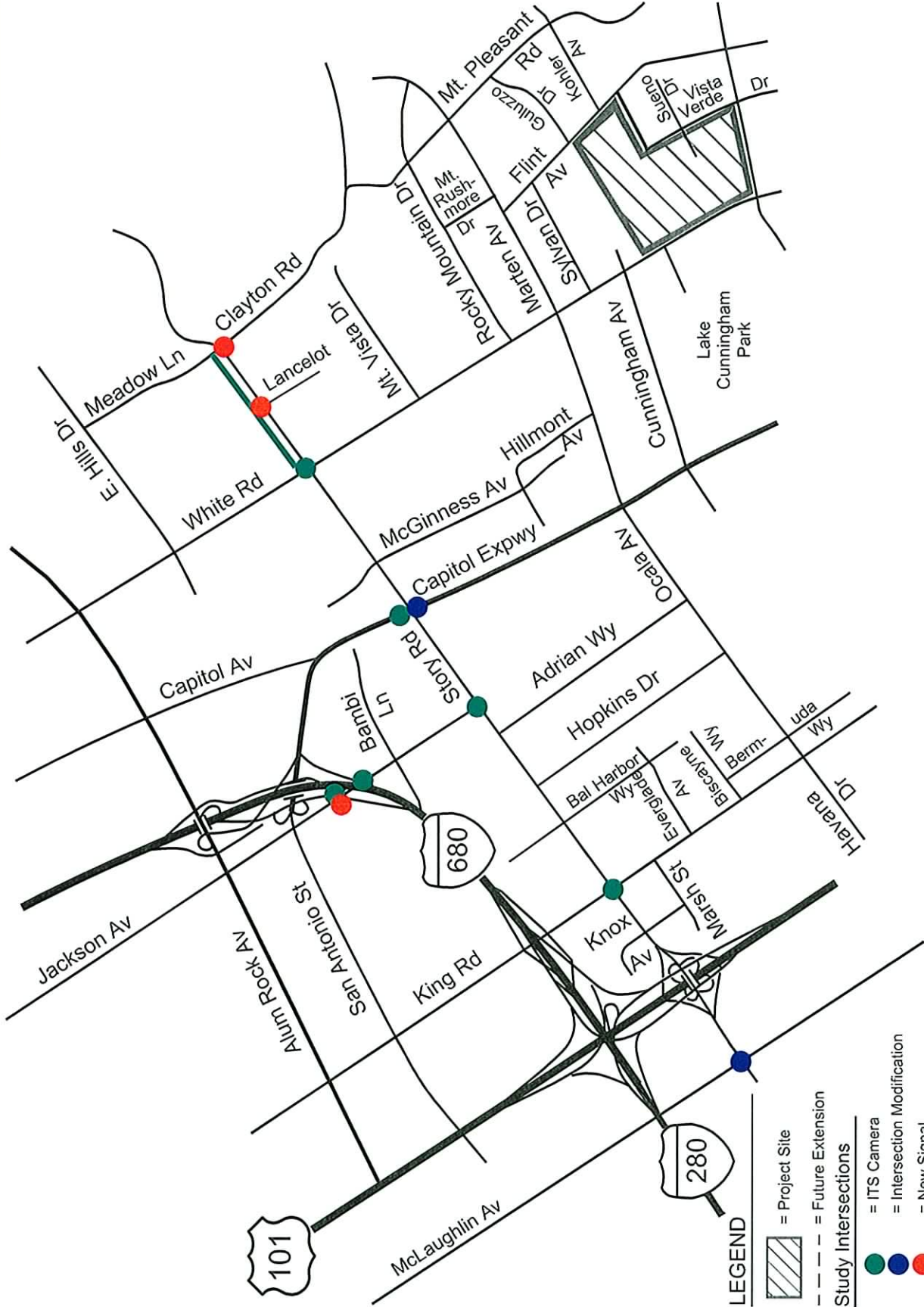


Figure 4

STORY ROAD CORRIDOR IMPROVEMENTS

Evergreen • East Hills Vision Strategy

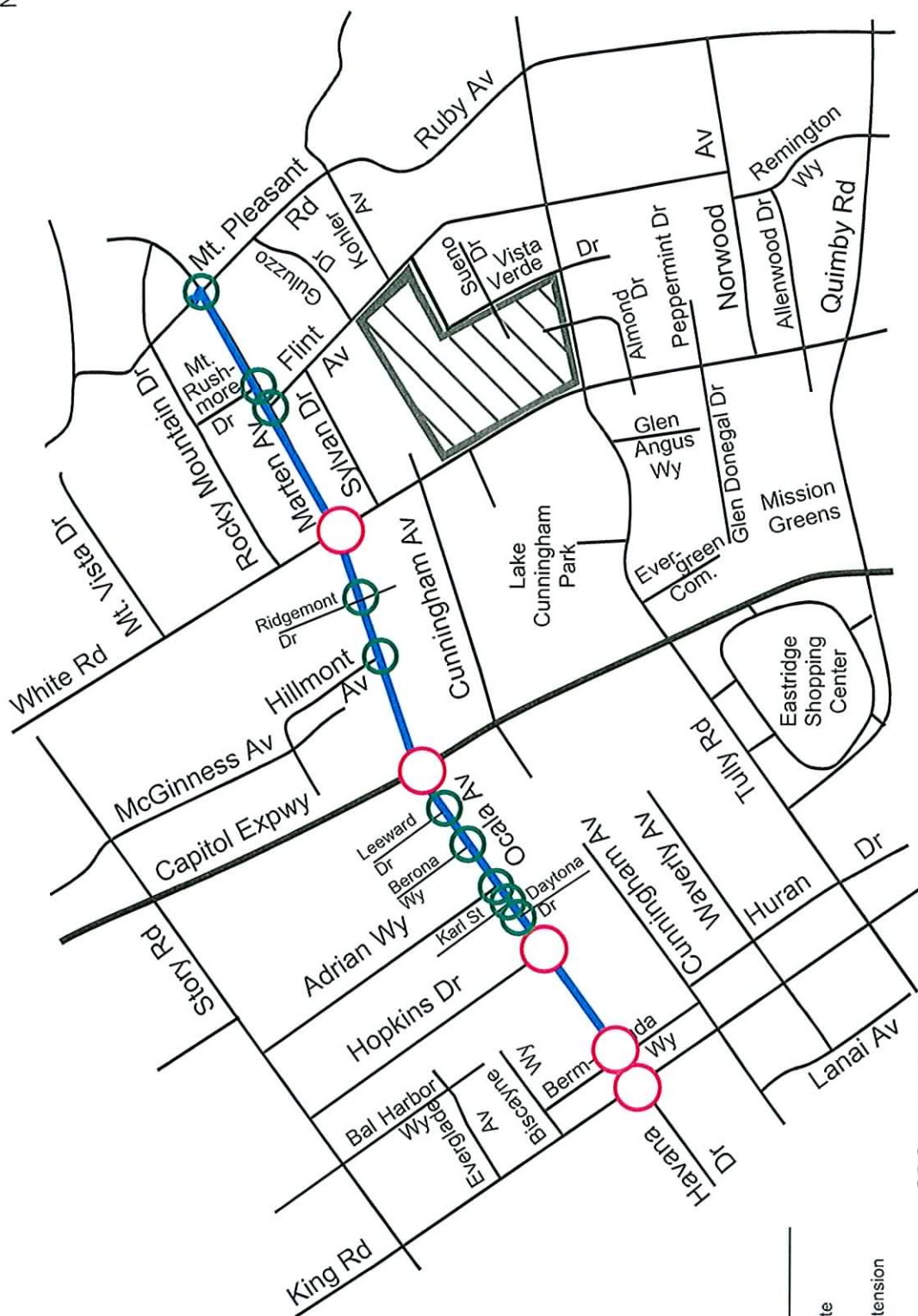
3.

Ocala Avenue / Marten Avenue Corridor

This chapter describes the transportation system in the Ocala Avenue / Marten Avenue Corridor, including roadway cross-section, signalized and unsignalized intersection operations, and pedestrian and bicycle facilities. The Ocala Avenue / Marten Avenue Corridor in the Evergreen • East Hills area extends from the Ocala Avenue / King Road intersection eastward approximately two miles to it's the intersection of Mt. Pleasant Road and Marten Avenue (Figure 5), providing access to many housing areas and several schools: Overfelt High School on Ocala Avenue at Bermuda Way, Meyer Elementary School on Ocala Avenue at Daytona Drive, Ocala Middle School on Ocala Avenue at Wonderama Drive, Mt. Pleasant High School on Marten Avenue at White Road, and August Boeger Junior High School on Marten Avenue at Flint Avenue.

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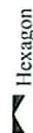
LEGEND



= Project Site
-- = Future Extension
● = Signalized
● = Future Signal
● = Unsignalized

GP Street Designation

- Red line = Arterial (115'-130')
- Blue line = Arterial (80'-106')
- Orange line = Major Collector



Hexagon
Transportation Consultants, Inc.

Figure 5

OCALA AVENUE/MARTEN AVENUE CORRIDOR

Evergreen - East Hills Vision Strategy

Roadway Cross-Section

Ocala Avenue / Marten Avenue is a designated four-lane arterial that extends from King Road in the west to Mt. Pleasant Road in the east. Ocala Avenue / Marten Avenue has a fairly consistent width throughout these sections. However, the number of lanes and striping varies. Between King Road and Leeward Drive (just west of Capitol Expressway), Ocala Avenue has two travel lanes, a center two-way turn lane, bike lanes and on-street parking. Near Leeward Drive, it becomes a four-lane facility with a median. This section has no bike lanes or on-street parking. Ocala Avenue reverts again to a two-lane roadway with bike lanes and parking near Woodridge Way (just west of White Road), which continues to Mt. Pleasant Road. Although most of Ocala Ave. / Marten Ave. has only two travel lanes and is designated for four lanes, restriping to four lanes is not recommended. The road functions well with two lanes at most locations. The City should at some point in the future consider processing a General Plan amendment to downgrade the parts of Ocala Avenue / Marten Avenue that are two-lane from an arterial to a two-lane collector.

Traffic Operations

This section describes existing and future levels of service at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections. The intersections studied along the Ocala Avenue / Marten Avenue Corridor are displayed in Figure 5 and are as follows:

Signalized Intersections Analyzed

- *King Road and Ocala Avenue*
- *Bermuda Way and Ocala Avenue*
- *Hopkins Drive and Ocala Avenue*
- *Capitol Expressway and Ocala Avenue*
- *White Road and Ocala Avenue*

Unsignalized Intersections Analyzed

- *Daytona Drive and Ocala Avenue*
- *Karl Street and Ocala Avenue*
- *Adrian Way and Ocala Avenue*
- *Berona Way and Ocala Avenue*
- *Leeward Drive and Ocala Avenue*
- *Hillmont Avenue and Ocala Avenue*
- *Ridgemont Drive and Ocala Avenue*
- *Flint Avenue and Marten Avenue*
- *Mt. Rushmore Drive and Marten Avenue*
- *Mt. Pleasant Road and Marten Avenue*

Observed Existing Conditions

Problems were observed under existing conditions at the following intersections along the corridor:

Capitol Expressway and Ocala Avenue. During the AM peak hour, the queue in the westbound right-turn lane on Ocala Avenue occasionally extends past Evermont Court, blocking vehicles from existing and entering this street. However, few vehicles were observed trying to make these movements.

White Road and Ocala Avenue / Marten Avenue. During the AM peak hour, the queue on westbound Marten Avenue occasionally extends back to the driveway at Mt. Pleasant High School. Although the high school was in session at the time of this observation, no conflicts were observed with this queue.

Planned / Background Improvements

The following improvements are planned and funded under background conditions and will occur with other, previously approved projects in Evergreen.

LRT Expansion. The Capitol Expressway Light Rail Project is included in the study as a background improvement. The LRT project will necessitate removal of the HOV lanes on Capitol Expressway, leaving three mixed-flow lanes in each direction. In addition the LRT project will place the Ocala – Cunningham LRT Station near the Capitol Expressway / Ocala Avenue intersection. This will require the northbound left-turn movement to be reduced from two lanes to a single lane.

The intersection of *White Rd. / Ocala Ave.* will see the addition of a separate westbound right turn lane.

Required Transportation Improvements

The proposed project includes numerous improvements to the surrounding transportation network including improvements to freeways, expressways, and local streets. There are four new funded and required traffic signals, described in a following section below. The following improvements would also be fully funded by the project in the Ocala Avenue / Marten Avenue Corridor:

Reconfigure Ocala Avenue between Woodridge Way and White Road

Ocala Avenue will be reconfigured to four lanes, two in each direction, between Woodridge Way and White Road in the east, a distance of 600 feet. The improvements will occur within the existing right-of-way. These improvements will reduce queueing and delay problems that occur today and with the project.

Intersection Improvements

Project-sponsored improvements at signalized study intersections are described below.

White Road / Ocala Avenue / Marten Avenue. Widen the westbound approach to add a second through lane. Restripe the eastbound approach to accommodate a second through lane. Additional right-of-way will be required.

Project Volumes

Traffic volumes on the Ocala Avenue / Marten Avenue Corridor are shown in Figure 6.

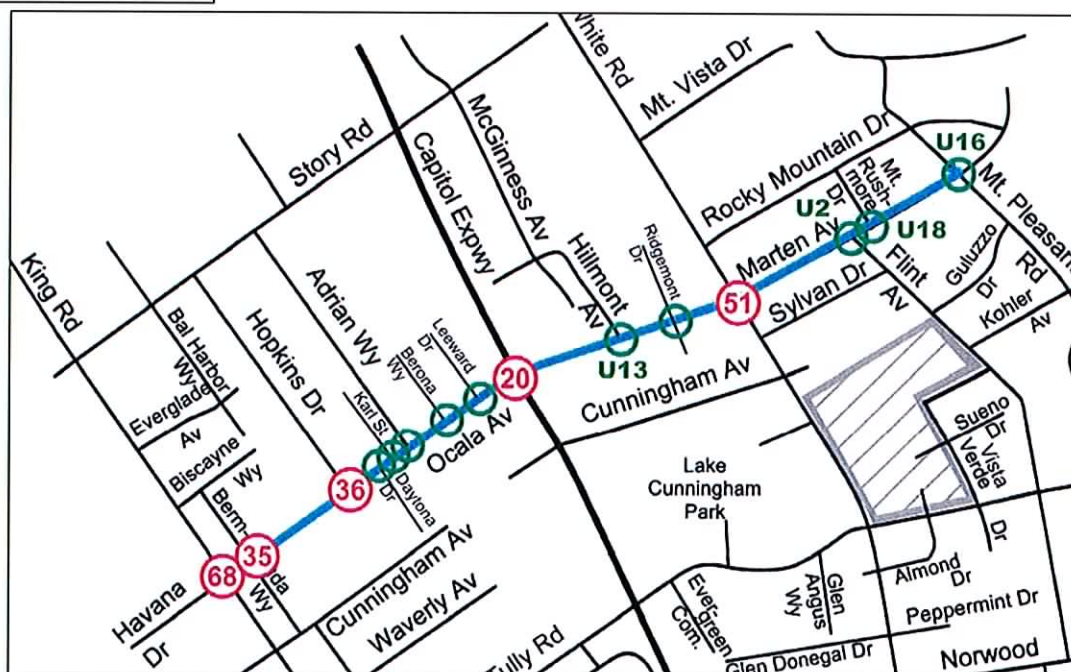
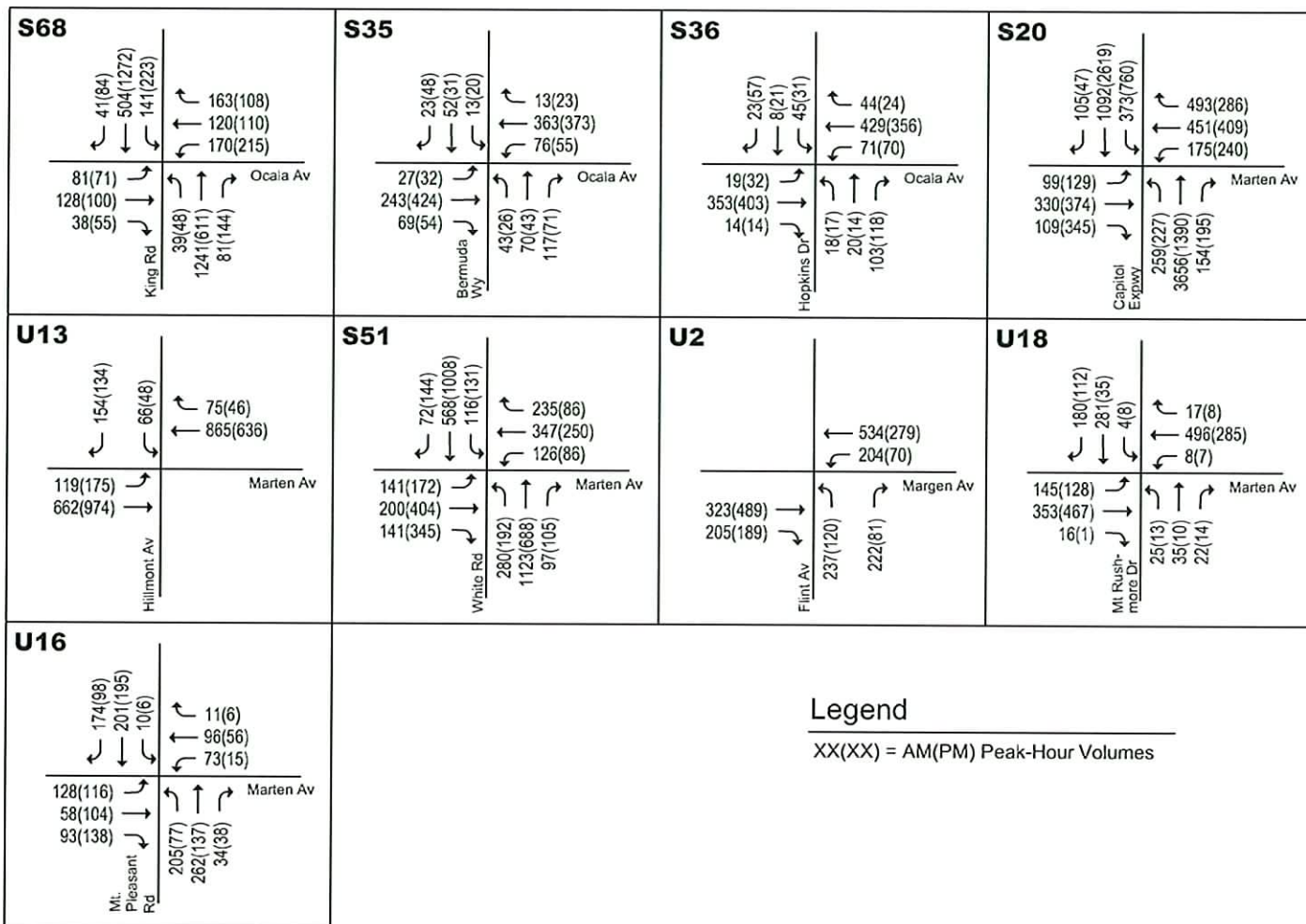


Figure 6

OCALA AVENUE / MARTEN AVENUE PROJECT TRAFFIC VOLUMES SCENARIO V

Level of Service Analysis

The results (Table 5) show that the intersection of Capitol Expressway and Ocala Ave. would operate at LOS F under the project scenario during the AM peak hour. The other signalized intersections in the corridor would continue to operate at LOS D or better.

Table 5

Ocala Avenue / Marten Avenue Corridor Level of Service Analysis

Intersection	Existing				Background				Project V			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
King Rd. and Ocala Ave.	37.4	D	35.2	D	37.7	D	35.7	D	37.3	D	35.6	D
Bermuda Way and Ocala Ave.	15.6	B	13.8	B	15.5	B	13.4	B	15.3	B	13.5	B
Hopkins Dr. and Ocala Ave.	18.4	B	20.7	C	18.3	B	20.5	C	18.3	B	20.6	C
Capitol Expressway and Ocala Ave.	49.7	D	47.9	D	53.8	D	51.9	D	84.1	F	54.9	D
White Rd. and Ocala Ave.	33.0	C	30.2	C	29.2	C	29.5	C	29.0	C	29.5	C

Capitol Expressway and Ocala Avenue

Impact: This intersection is expected to operate at LOS D during the AM peak hour under background conditions. The added trips as a result of the Evergreen • East Hills Vision Strategy would cause the intersection level of service to degrade to LOS F. Based on the City of San Jose's level of service impact criteria, this constitutes a significant impact.

Mitigation: There are no feasible mitigation measures at this intersection. A fourth through lane would be needed on northbound Capitol Expressway in order to achieve an acceptable level of service. Such an improvement would require widening the roadway by approximately 11 feet both north and south of Ocala Avenue for a total distance of approximately 1,000 feet. Acquiring the additional right-of-way necessary for this improvement would involve the purchase of a total of 13 single-family residential properties, including nine south of Ocala Avenue and four north of Ocala Avenue.

Unsignalized Intersection Analysis

The unsignalized study intersections were analyzed to see if signalization or other changes to traffic control would be warranted under existing or project conditions. Peak hour signal warrant checks (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were performed at ten unsignalized intersections along the Ocala Ave. / Marten Ave. Corridor. The results of this analysis are summarized in Table 6. The peak-hour signal warrant is met at a particular intersection when existing volumes or projected volumes on the major and minor streets reach a defined threshold. Engineering judgment needs to be exercised to determine that a signal would improve the overall safety and operation of the intersection and would not unduly disrupt traffic flow on the major street.

Table 6

Ocala Avenue / Marten Avenue Corridor Signal Warrants Analysis

Intersection	Existing		Project Scenario V		Recommendations
	AM Peak	PM Peak	AM Peak	PM Peak	
	Warrant Met?	Warrant Met?	Warrant Met?	Warrant Met?	
Daytona Drive and Ocala Avenue	Yes	Yes	Yes	Yes	Leave as is (one-way stop)
Karl Street and Ocala Avenue	Yes	Yes	Yes	Yes	Leave as is (one-way stop)
Adrian Way and Ocala Avenue	Yes	Yes	Yes	Yes	Install signal
Berona Way and Ocala Avenue	Yes	Yes	Yes	Yes	Leave as is (one-way stop)
Leeward Drive and Ocala Avenue	Yes	Yes	Yes	Yes	Leave as is (one-way stop)
Hillmont Avenue and Ocala Avenue	Yes	Yes	Yes	Yes	Install signal
Ridgemont Drive and Ocala Avenue	Yes	Yes	Yes	Yes	Leave as is (two-way stop)
Flint Avenue and Marten Avenue	Yes	No	Yes	No	Install signal, paired with Mt. Rushmore
Mt. Rushmore Drive and Marten Avenue	Yes	No	Yes	No	Install signal, paired with Flint
Mt. Pleasant Road and Marten Avenue	No	No	No	No	Leave as is (4-way stop)

The first five intersections in this table occur within a half-mile length of Ocala Ave. Not all of them can be signalized, despite all meeting warrants, without introducing intolerable delays. For more efficient operation, signals should be placed at the largest cross-streets. In this case, the largest cross-street is Adrian Way. Hillmont Ave. and Ridgemont Dr. are within a tenth of a mile of each other. Because Hillmont Avenue has greater pedestrian activity, it is a more desirable location for a traffic signal than Ridgemont Drive.

Adrian Way / Ocala Avenue. This intersection currently meets signal warrants, and a signal should be installed as part of the Required Transportation Improvements. Adrian Way is designated a major collector in the General Plan.

Hillmont Avenue / Marten Avenue. This intersection currently meets signal warrants, and a signal should be installed as part of the Required Transportation Improvements.

Flint Avenue / Marten Avenue and Mt. Rushmore Drive / Marten Avenue. Due to the configuration of these two intersections and high pedestrian activities (near schools), this area poses significant traffic operations challenges. The City recently installed an uplit cross-walk on the east leg of Marten & Mt Rushmore to improve this pedestrian crossing. Since both intersections meet signal warrants, the preferred solution is to install two T-intersection signals to operate as one and eliminate the Boeger Jr School access on Marten. These two signals would be installed as part of the Required Transportation Improvements.

Efficient operations of these new signals would reduce the existing congestion and improve traffic operations and pedestrian crossing. Based on preliminary discussions with school officials, the school supports the proposed solution including the elimination of school access off Marten Avenue.

ITS Plan

Intelligent Transportation Systems, or ITS, is the use of communications and computer technology to increase the efficiency of signal operations and reduce delays in the system. The City of San Jose has developed an ITS plan for the Evergreen area. The plan calls for traffic surveillance cameras and signal interconnect systems to be installed via cables, conduit, and trunk lines or wireless links where appropriate. Cameras are planned to be added to three intersections within the corridor:

King Road and Ocala Avenue

Capitol Expressway and Ocala Avenue

White Road and Ocala Avenue

The plan calls for new conduit and communication cables to be installed on Ocala Ave. from Hopkins Drive to Adrian Way and from Capitol Expressway to Hilmont Avenue. The plan calls for a wireless communication link to be installed on Marten Avenue from White Road to Mt. Rushmore Drive, to connect the traffic signal controller at the Mt. Rushmore Dr. / White Rd. intersection to the City's ITS system. A wireless link is planned in order to minimize the amount of trenching within the public right-of-way at the end of the communication links along the east foothills (see Figure 7).

Pedestrian and Bicycle Facilities

The corridor was evaluated for pedestrian and bicycle access. Recommendations for improvement are made where appropriate.

Pedestrians

Most sections of the Ocala Ave. / Marten Ave. Corridor have sidewalks on both sides of the street. However, there are some exceptions: there is no sidewalk on the south side of Ocala Avenue along Reid-Hillview Airport (Adrian Way to Capitol Expressway), there are intermittent gaps in the sidewalks on Marten Avenue east of White Road. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new sidewalks. The City may want to consider as a candidate for these funds construction of the sidewalk on Ocala / Marten at these locations.

Major pedestrian activity occurs around the schools in the corridor. Access to Overfelt High School is aided by traffic signals at Bermuda Way and Hopkins Drive. There is an enhanced crosswalk on Ocala Avenue to serve Meyer School. The planned signal nearby at Adrian Way will create gaps for the crosswalk. At Ocala Middle School there also is an enhanced crosswalk, and the planned signal at Hilmont Avenue is only one block away. Access to Mount Pleasant high School is aided by the traffic signal at Ocala Avenue and White Road, and the planned signal at Marten Avenue and Flint Avenue will help. At Boeger Junior High School the planned signals at Flint Ave. and at Mt. Rushmore Dr. will help.

Bicycles

Most of the Ocala Ave. / Marten Ave. corridor has bike lanes. However, there is a gap between Capitol Expressway and White Road. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new bike lanes. The City may want to consider bike lanes on Ocala Avenue at this location as a candidate for these funds.

Summary of Improvements

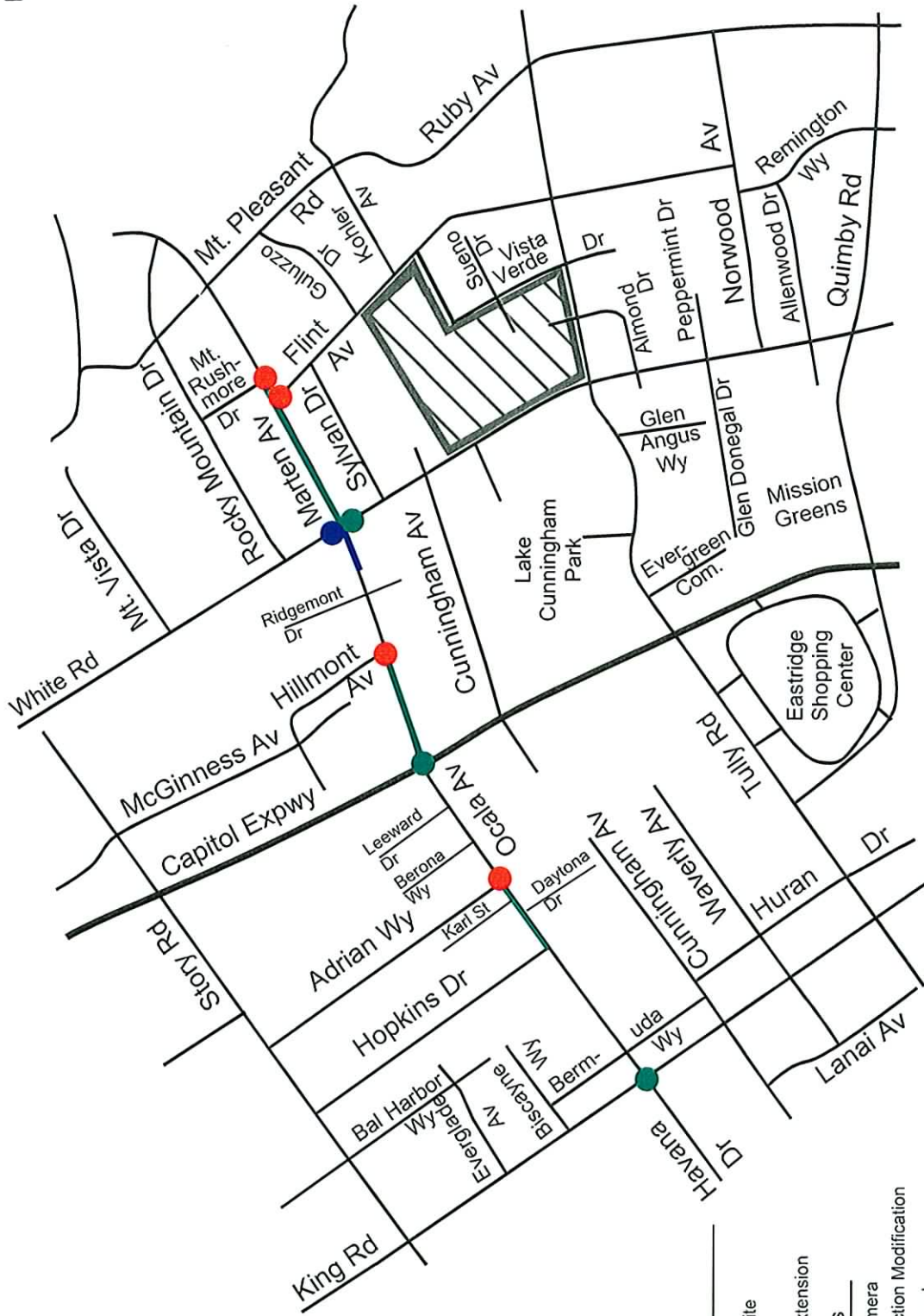
Project improvements to the Ocala Avenue / Marten Avenue Corridor are as follows (see Figure 7):

Required Transportation Improvements

- Install a traffic signal at the *Ocala Avenue / Adrian Way* intersection.
- Install a traffic signal at the *Hillmont Avenue / Ocala Avenue* intersection.
- Install a traffic signal at the *Flint Avenue / Marten Avenue* intersection.
- Install a traffic signal at the *Mt. Rushmore Drive / Marten Avenue* intersection. Pair this signal with the new signal at *Flint Avenue*.
- Widen the westbound approach to add a second through lane at the *White Road / Ocala Avenue / Marten Avenue* intersection. Restripe the eastbound approach to accommodate the second through lane.
- Reconfigure *Ocala Avenue* to four lanes, two in each direction, between Woodridge Way and White Road, a distance of 600 feet.

Recommended Transportation Amenities

- Install a camera system at the intersections of *Ocala Avenue / King Road*, *Ocala Avenue / Capitol Expressway* and *Ocala Avenue / White Road*.
- Install ITS signal interconnect cables on *Ocala Avenue* from Hopkins Drive to Hillmont Avenue. Install ITS wireless interconnect systems on *Marten Avenue* from White Road to Mt. Pleasant Road.
- Consider use of EEHVS miscellaneous transportation improvement funds for the addition of sidewalks and bike lanes along *Ocala Avenue and Marten Avenue* where they don't currently exist.
- Consider a study of potential weekend traffic signal coordination on *Ocala Avenue / Marten Avenue*.



LEGEND

= Project Site

= Future Extension

Study Intersections

- = ITS Camera
- = Intersection Modification
- = New Signal
- = Install Sidewalks
- = Restripe/Reconfigure
- = Signal Interconnect

Figure 7

OCALA AVENUE/MARTEN AVENUE CORRIDOR IMPROVEMENTS

Evergreen • East Hills Vision Strategy

4

Tully Road Corridor

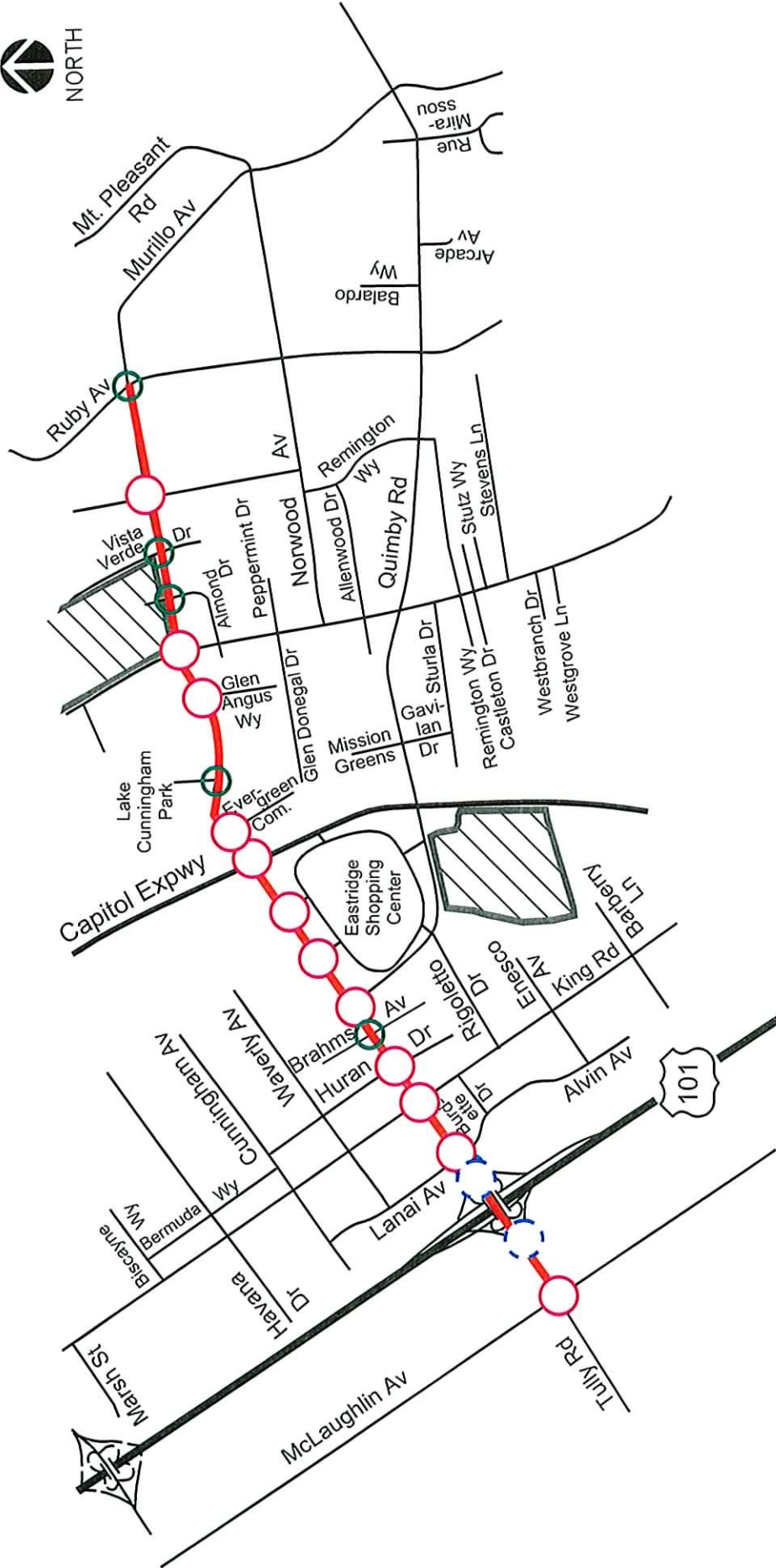
This chapter describes the transportation system in the Tully Road Corridor, including roadway cross-section, signalized and unsignalized intersection operations, intersection queueing, freeway interchange operations, and pedestrian and bicycle facilities. The Tully Road Corridor in the Evergreen • East Hills area extends from the McLaughlin Avenue and Tully Road intersection eastward approximately 3.4 miles to its intersection with Ruby Avenue (Figure 8), providing access to commercial areas, housing areas, and the Pleasant Hills Golf Course Property new development.

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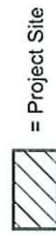
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NORTH



LEGEND



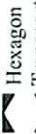
--- = Future Extension

Study Intersections

- = Signalized
- = Future Signal
- = Unsignalized

GP Street Designation

- Red line = Arterial (115'-130')
- Blue line = Arterial (80'-106')
- Orange line = Major Collector



Transportation Consultants, Inc.

Figure 8

TULLY ROAD CORRIDOR

Evergreen • East Hills Vision Strategy

Roadway Cross-Section

Tully Road is a designated six-lane arterial for its entire length through Evergreen. It provides access to and from U.S. 101 via a full clover-leaf interchange. Between McLaughlin Avenue and White Road, Tully Road is built as a six-lane divided arterial with a raised median. Between White Road and Flint Avenue, it is a five-lane divided facility (three lanes westbound and two lanes eastbound), wide enough for six lanes. East of Flint Avenue, it is a four-lane divided arterial with a median. Tully Road is adjacent to the southern boundary of the Pleasant Hills Golf Course Property. While Tully Road east of Flint Ave. is not built to a six-lane cross-section, it operates well and does not need to be widened.

Traffic Operations

This section describes existing and future levels of service and queueing at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections and a description of traffic operations at the Tully Road / U.S. 101 interchange. The intersections studied along Tully Road Corridor are displayed in Figure 8 and are as follows:

Signalized Intersections Analyzed

- *McLaughlin Avenue and Tully Road*
- *U.S. 101 and Tully Road (W) (Future)*
- *U.S. 101 and Tully Road (E) (Future)*
- *Alvin Way and Tully Road*
- *King Road and Tully Road*
- *Huran Drive and Tully Road*
- *Quimby Road and Tully Road*
- *Eastridge Way and Tully Road*
- *Eastridge Lane and Tully Road*
- *Capitol Expressway and Tully Road*
- *Evergreen Commons and Tully Road*
- *Glen Angus Way and Tully Road*
- *White Road and Tully Road*
- *Flint Avenue and Tully Road*

Unsignalized Intersections Analyzed

- *Brahms Avenue and Tully Road*
- *Lake Cunningham Park and Tully Road*
- *Almond Drive and Tully Road*
- *Vista Verde Drive and Tully Road*

- *Ruby Avenue and Tully Road*

Planned / Background Improvements

The following improvement is planned and funded under background conditions and will occur with other, previously approved projects in Evergreen.

LRT Expansion. The Capitol Expressway Light Rail Project is included in the study as a background improvement. The LRT project will necessitate removal of the HOV lanes on Capitol Expressway, leaving three mixed-flow lanes in each direction.

Required Transportation Improvements

The proposed project includes numerous improvements to the surrounding transportation network including improvements to freeways, expressways, and local streets. There are required and funded changes at the U.S. 101 / Tully Rd. interchange and on U.S. 101 itself, as well as one required and funded new traffic signal, described in following sections below. The following improvements along Tully Road would also be fully funded by the project:

Intersection Improvements

Project-sponsored improvements at signalized study intersections are described below.

King Road / Tully Road. Add a second left-turn lane to the southbound approach. Add a separate right-turn lane to the eastbound approach. Additional right-of-way will be required.

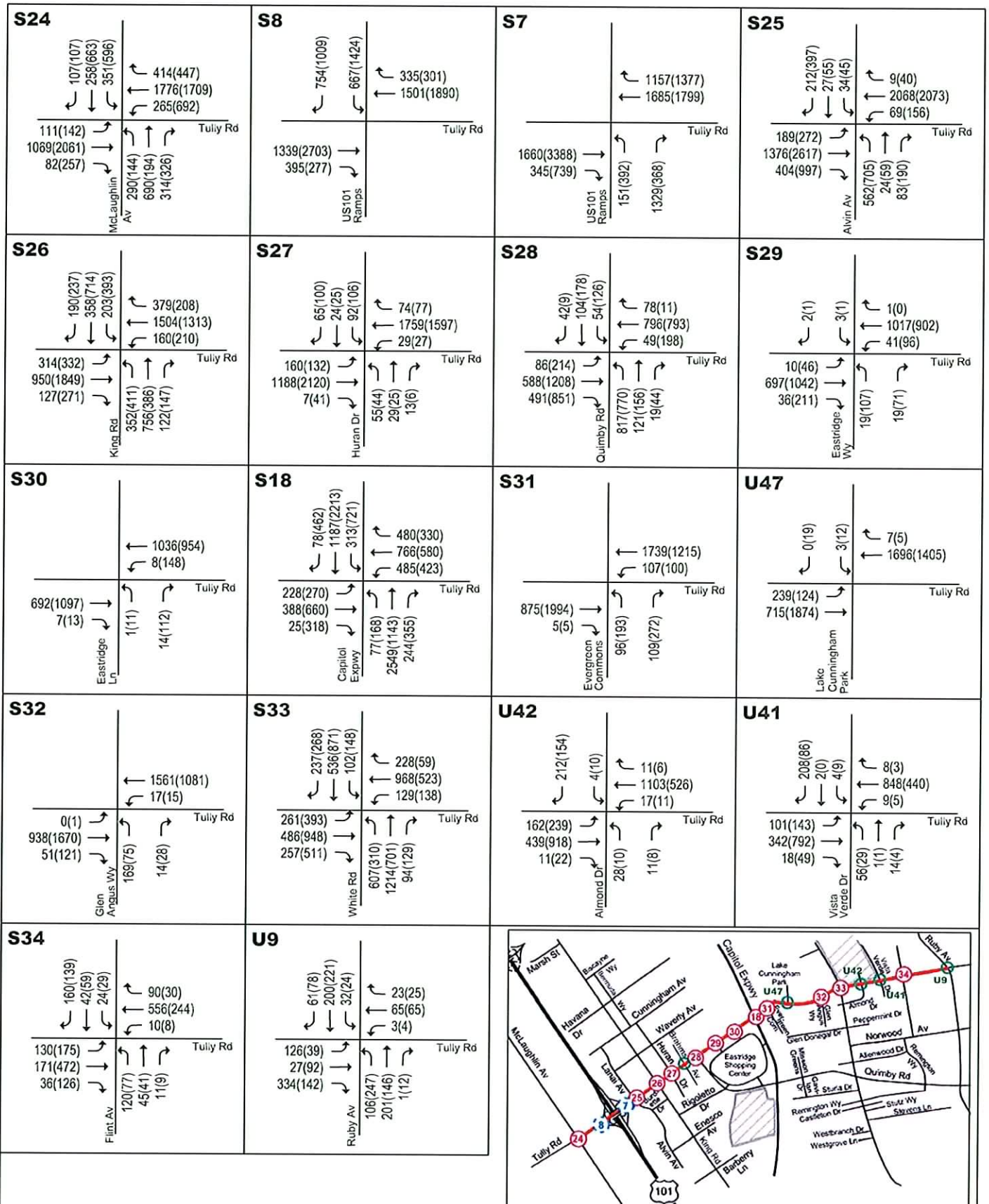
White Road / Tully Road. Add a second left-turn lane to each of the four approaches. Add a third through lane to the northbound, southbound and eastbound approaches. All work will occur within the existing right-of-way. The above modifications would eliminate the separate right-turn lanes on the eastbound and westbound approaches.

Project Volumes

Turning movement volumes under project conditions at studied intersections in the corridor are shown in Figure 9.

Level of Service Analysis

The results show that the intersection of McLaughlin Avenue and Tully Road would operate at LOS E during the PM peak hour under project conditions (see Table 7). The other signalized intersections in the corridor are expected to operate at LOS D or better.



Legend

XX(X) = AM(PM) Peak-Hour Volumes

Hexagon

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Figure 9

TULLY ROAD PROJECT TRAFFIC VOLUMES SCENARIO V

Evergreen • East Hills Vision Strategy

Table 7
Tully Road Corridor Level of Service Analysis

Intersection	Existing				Background				Project V			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
McLaughlin Avenue and Tully Road	42.6	D	54.3	D	43.0	D	61.0	E	43.5	D	65.5	E
U.S. 101 and Tully Road (W) (Future)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	18.6	B	30.2	C
U.S. 101 and Tully Road (E) (Future)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29.2	C	15.0	B
Alvin Way and Tully Road	32.7	C	44.1	D	33.4	C	43.4	D	32.3	C	46.2	D
King Road and Tully Road	38.9	D	48.6	D	39.8	D	50.1	D	39.2	D	48.3	D
Huran Drive and Tully Road	24.3	C	22.2	C	27.5	C	25.8	C	21.5	C	22.0	C
Quimby Road and Tully Road	34.4	C	45.1	D	34.0	C	46.7	D	33.4	C	49.1	D
Eastridge Way and Tully Road	9.6	A	17.2	B	11.4	B	18.4	B	8.8	A	16.2	B
Eastridge Lane and Tully Road	4.2	A	8.8	A	4.5	A	9.3	A	4.7	A	9.5	A
Capitol Expressway and Tully Road	40.3	D	41.5	D	37.3	D	45.4	D	48.5	D	51.5	D
Evergreen Commons and Tully Road	8.6	A	11.1	B	9.6	A	11.7	B	9.2	A	13.2	B
Glen Angus Way and Tully Road	15.3	B	10.5	B	15.1	B	10.8	B	13.3	B	10.0	A
White Road and Tully Road	39.7	D	38.2	D	43.0	D	38.5	D	38.4	D	38.0	D
Flint Avenue and Tully Road	23.8	C	25.5	C	25.1	C	25.9	C	24.6	C	26.3	C

Project Impacts

The results show that, according to the City of San Jose's level of service standards for signalized intersections, the following intersection would be significantly impacted by the project scenario during the PM peak hours.

McLaughlin Avenue and Tully Road

Impact: This intersection is expected to operate at LOS E during the PM peak hour under background conditions. The added trips as a result of the Evergreen • East Hills Vision Strategy would cause the critical-movement delay to increase by four or more seconds and the V/C ratio to increase by .01 or more. Based on the City of San Jose's level of service impact criteria, this constitutes a significant impact.

Mitigation: The significant project impact at this intersection could be mitigated by adding an exclusive northbound right-turn lane. This improvement could be accomplished by acquiring additional right-of-way on the southeast quadrant. Alternatively, if additional right-of-way can not be acquired, the necessary roadway widening could be achieved within the existing right-of-way by narrowing the sidewalk in front of the corner parcel (from 10 to 5 feet) and eliminating the plant strip in front of the adjacent parcel(s). This mitigation measure would improve the intersection level of service from LOS E to LOS D with an average delay that is less than under background conditions. Based on the City's standards, the proposed improvement would satisfactorily mitigate the project impact.

Queueing

The adequacy of left turn pocket storage was evaluated for four signalized intersections in the corridor. The number of vehicles in queue was calculated using the TRAFFIX queue length software. Queue lengths in feet were calculated assuming 20 feet per vehicle. Table 8 summarizes the queueing findings.

Existing Conditions

The following intersections were observed to have back-ups out of the turn pockets during peak hours.

Alvin Avenue / Lanai Avenue and Tully Road. The vehicle queue on westbound Tully Road caused by the metering light on the northbound U.S. 101 on ramp extends across Alvin Avenue during the AM peak hour. As a result of the northbound U.S. 101 metering light, vehicles turning left onto westbound Tully Road from northbound Alvin Avenue queued along Alvin Avenue past Fontaine Road. Some of the vehicles making the northbound left turn were unable to get through the signal in a single cycle because of the backups on both Tully Road and Alvin Avenue. Similarly, the right-turn movement from southbound Lanai Avenue to westbound Tully Road also is subject to long queues. Because the queues that develop at this intersection during the AM peak hour are clearly a result of the northbound U.S. 101 metering light and are not a product of the actual intersection configuration, the level of service analysis represents traffic conditions as they would exist without the influence of ramp metering. Also during the AM peak hour, the metering light on the northbound U.S. 101 loop on ramp from eastbound Tully Road causes a queue that extends across the overpass and impedes traffic on the southbound U.S. 101 loop off ramp to eastbound Tully Road.

There is a single auxiliary lane and two through lanes atop the eastbound Tully Road / U.S. 101 overpass. The auxiliary lane is used by vehicles merging onto eastbound Tully Road from the southbound U.S. 101 loop off ramp and by vehicles approaching the northbound U.S. 101 loop on ramp from eastbound Tully Road. The auxiliary lane is quite short (extending only a few hundred feet) making it difficult for vehicles to “weave” in and out of the lane during the PM peak hours of traffic. This “weaving” reduces the flow rate of vehicles traveling eastbound on Tully Road, as well as the flow rate from the southbound U.S. 101 loop off ramp.

When the signal is red in the eastbound direction at the Alvin/Tully intersection, the long vehicle queue reaches the top of the Tully Road / US 101 overpass during the PM peak hour. This often results in a severe backup on the southbound 101 off-ramp loop segment and the entire Tully Road off-ramp from southbound US 101. The long vehicle queue on Tully Road often blocks vehicles from entering the eastbound left-turn pocket during the PM peak hour.

The northbound left-turn vehicle queue backs up to Burdette Drive during the PM peak hour of traffic. The queue is occasionally unable to clear the intersection in a signal cycle.

King Road and Tully Road. During the AM peak hour, queues frequently extend on westbound Tully Road from the U.S. 101 interchange past King Road. The Tully Road queue impedes the northbound left-turn movement, which spills out of the turn pocket. As a result, vehicles on northbound King Road attempting to complete a left turn onto westbound Tully Road must wait through multiple signal cycles. During the PM peak hour, the southbound left-turn queue spills out of the turn pocket and not all vehicles clear during each signal cycle.

Table 8
Tully Road Corridor Left-turn Storage Analysis

Existing														Background				Project Conditions			
Intersection	Peak Hour	Mvmt.	# Lanes	Storage Per Lane	Proposed # Lanes	Storage Per Lane	Vehicle Queue	Required		Proposed		Vehicle Queue	Required Storage Per Lane	Comments on whether Proposed Left-Turn Storage Fulfills Length Requirements							
								# Lanes	Storage Per Lane	# Lanes	Storage Per Lane										
Capitol Expressway and Tully Road	AM	SBL	2	380	2	380	17	180	2	380	2	240	240	Adequate	Extending SBL turn pocket may not be feasible with planned Capitol Expressway LRT.						
	PM	SBL	2	380	2	380	36	360	2	380	2	480	480	Inadequate							
	AM	WBL	2	210	2	210	28	280	2	210	2	340	340	Inadequate							
	AM	WBL	2	210	2	210	25	260	2	210	2	340	340	Inadequate							
White Road and Tully Road	AM	WBL	1	180	1	180	5	100	2	230	2	80	80	Adequate	WBL turn pocket may be extended to provide the necessary storage by removing median and landscaping.						
	PM	WBL	1	180	1	180	4	80	2	230	2	100	100	Adequate							
	AM	EBL	1	200	1	200	15	300	2	230	2	180	180	Adequate							
	PM	EBL	1	200	1	200	18	360	2	230	2	220	220	Adequate							
Quimby Road and Tully Road	AM	NBL	2	140	2	140	15	160	2	140	2	340	340	Inadequate	NBL turn pocket may be extended by approximately 200 feet by removing median and landscaping. Further turn pocket lengthening to provide the required queue storage is not feasible due to the NBL turn pocket at adjacent commercial driveway.						
	PM	NBL	2	140	2	140	28	280	2	140	2	480	480	Inadequate							
	AM	EBL	1	140	1	140	5	120	1	140	1	120	120	Adequate							
	PM	EBL	1	140	1	140	14	300	1	140	1	300	300	Inadequate							
															EBL turn pocket may be extended by approximately 160 feet by removing median and landscaping.						

Project Conditions

The following intersections are projected to have left turn queues longer than the existing turn pockets on one or more legs of the intersection.

Capitol Expressway and Tully Road. Storage for the westbound left turn would be inadequate under background and project conditions. The left turn pocket could be lengthened by cutting into the landscaped median. Storage for the southbound left turn would be inadequate under project conditions. It may or may not be possible to extend the southbound left turn pocket depending on the future LRT design on Capitol Expressway.

Quimby Road and Tully Road. The northbound and eastbound left turn pockets are shown to be inadequate under both background and project conditions. The northbound pocket would need to be lengthened by 340 feet under project conditions. 200 feet of lengthening is possible by cutting into the landscaped median. Further lengthening is precluded by an adjacent turn pocket. The eastbound pocket would need to be lengthened by 160 feet under project conditions. This is possible by cutting into the median. The signal at this intersection is an older type using split-phase control. A new eight-phase controller, with protected left turn control, would reduce delays and further alleviate queueing problems at this intersection.

Flint Avenue and Tully Road. The eastbound left turn pocket is shown to be inadequate under project conditions, although only by 40 feet. If desired, it would be possible to extend the pocket by cutting into the landscaped median.

Unsignalized Intersection Analysis

The unsignalized study intersections were analyzed to see if signalization or other changes to traffic control would be warranted under existing or project conditions. Peak hour signal warrant checks (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were performed at seven unsignalized intersections along the Tully Road Corridor. The peak-hour signal warrant is met at a particular intersection when existing volumes or projected volumes on the major and minor streets reach a defined threshold. Engineering judgment needs to be exercised to determine that a signal would improve the overall safety and operation of the intersection and would not unduly disrupt traffic flow on the major street.

Almond Drive / Tully Road. This intersection is projected to meet signal warrants under project conditions (see Table 9). A traffic signal should be installed at this intersection in conjunction with the Pleasant Hills Golf Course Property development. The signal should not allow through traffic on Almond Drive, so as to prevent project traffic in the neighborhood.

Vista Verde Drive / Tully Road. This intersection is projected to meet signal warrants under project conditions. Vista Verde Dr. and Almond Dr. are one block apart. Both cannot be signalized without introducing unnecessary delays to Tully Road. Almond Dr. receives the higher volume of the two; therefore it should be signalized. For Vista Verde Dr., to provide increased safety, installation of an S-median is recommended, in conjunction with the Pleasant Hills Golf Course Property project. This will allow left turns into the neighborhood but not left turns out.

Ruby Avenue / Tully Road. A traffic signal is recommended at this intersection, as part of the Required Transportation Improvements. This intersection is located where a major cross street intersects a General Plan street. It is anticipated that signal warrants will be met at some time in the future. The existing four-way stop at this intersection was installed as an interim measure until funding could be obtained for a signal.

Table 9

Tully Road Corridor Signal Warrants Analysis

Intersection	Existing		Project Scenario V		Recommendations
	AM Peak Warrant Met?	PM Peak Warrant Met?	AM Peak Warrant Met?	PM Peak Warrant Met?	
Brahms Avenue and Tully Road	No	No	No	No	Leave as is (S-median)
Lake Cunningham Park and Tully Road	No	No	No	No	Leave as is (one-way stop, T)
Almond Drive and Tully Road	Yes	Yes	Yes	Yes	Install signal, disallow through traffic on Almond to avoid neighborhood impacts
Vista Verde Drive and Tully Road	Yes	Yes	Yes	Yes	Install S median (no outbound LT)
Ruby Avenue and Tully Road	No	No	No	No	Install signal

US 101 / Tully Road Interchange Operations

This section describes existing and future operations at the U.S. 101 / Tully Road interchange. The EEHVS includes improvements to U.S. 101 and the interchanges in the Evergreen area.

Planned Operational Improvements to U.S. 101

The U.S. 101 Central Corridor Study, which was prepared under the guidance of the VTA, identified a range of improvements that would reduce traffic congestion resulting from merging and weaving conflicts and improve the overall U.S. 101 freeway system performance. This includes eliminating mainline traffic bottlenecks and improving safety. In response to comments made by Caltrans Highway Operations and Design, the project description resulting from this study was refined through further operations analyses. Because the Evergreen • East Hills Vision Strategy would provide the necessary funding for such freeway improvements, they are considered project-sponsored improvements and are thus included in the analysis of project levels of service.

The following improvements will be constructed on U.S. 101 in the area of the Tully Road Corridor, as part of the Required Transportation Improvements:

- Construct an auxiliary lane in the southbound direction between the Tully Road and Capitol Expressway interchanges.
- Reconfigure the U.S. 101/Tully Road interchange, converting the interchange from a full cloverleaf design to a partial cloverleaf design (eliminating the two existing loop off-ramps).

These improvements will be constructed within the existing Caltrans right-of-way. Caltrans and the VTA have prepared a Draft initial Study (IS) / Negative Declaration (ND) for the proposed U.S. 101 operational improvements independent of this project (EEHVS).

Queueing at Freeway Ramp Meters

Ramp meters are installed on all of the U.S. 101 on ramps serving the Evergreen area. Presently, freeway on-ramp meters control freeway entrances for the peak direction of travel only — northbound during the

AM peak period and southbound during the PM peak period. Since the Evergreen area is predominantly residential and employment centers are concentrated mostly in areas to the north, the longest ramp meter queues occur at the northbound on ramps during the AM peak hour. The existing maximum queue lengths and delay at northbound U.S. 101 on ramps serving the Evergreen area were measured during the AM peak hour. Table 10 shows existing queue lengths and delay at the Tully Road on-ramp.

The analysis shows that, with the addition of traffic generated by EEHVS, delays would be about the same as under existing conditions for vehicles entering northbound U.S. 101 from Tully Rd. Although the project would cause an increase in traffic volumes on these ramps, it is anticipated that the metering rates would increase by a corresponding amount.

Table 10
Maximum Queue Length and Delay at Tully Rd. and Northbound U.S. 101
On Ramp – AM Peak Hour

	WB Tully Road	
	Queue Length (veh.)	Wait Time (min:sec)
Existing Conditions	105	10:00
Background Conditions	48	04:30
Project Conditions		
Scenario V	94	09:00
Scenario V with Improvements	94	09:00

Notes:

Queue times were calculated using the surveyed existing (2004) queue lengths and estimated background and project trips, in combination with the future ramp meter rates obtained from the *Final Draft Traffic Operations Report--US 101 Operational Improvements from I-280/680 to Yerba Buena Road*, Fehr & Peers Associates, Inc., July 2005.

Tully Road Operations

Lane imbalances, weaving problems, and excessive queues on Tully Road will all be addressed with the interchange improvements. With the conversion of the interchange from a full cloverleaf to a partial cloverleaf design, northbound and southbound U.S. 101 exiting traffic will enter Tully Road from signalized intersections, thereby eliminating much of the lane imbalances and weaving associated with the traffic between the current on- and off-ramps.

ITS Plan

Intelligent Transportation Systems, or ITS, is the use of communications and computer technology to increase the efficiency of signal operations and reduce delays in the system. The City of San Jose has developed an ITS plan for the Evergreen area. The plan calls for traffic surveillance cameras to be installed and connected to the City's traffic management system via cables, conduit, and trunk lines or

wireless links where appropriate. Cameras are planned to be added to five intersections within the corridor:

Lanai Way and Tully Road

King Road and Tully Road

Quimby Road and Tully Road

Capitol Expressway and Tully Road

White Road and Tully Road

A signal interconnect system already exists along most of Tully Road. The ITS plan will fill in the gaps. The plan calls for new conduit and communication cables to be installed on Tully Road from Eastridge Lane to Capitol Expressway. The plan also calls for a wireless communication link to be installed on Tully Road from Flint Avenue to Ruby Avenue, to connect the traffic signal at Ruby and Tully to the City's ITS system. Wireless links are planned in order to minimize the amount of trenching within the public right-of-way at the end of the communication links along the east foothills (see Figure 10).

Pedestrian and Bicycle Facilities

The corridor was evaluated for pedestrian and bicycle access. Recommendations for improvement are made where appropriate.

Pedestrians

Tully Road has existing sidewalks on both sides of the street for its entire length.

Bicycles

Tully Road has existing bike lanes from U.S. 101 to Quimby Road. From Quimby Road east to White Road, future bicycle lanes are shown on the City of San Jose Bicycle Network Planning Map. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new bike lanes. The City may want to consider the addition of bike lanes on Tully Road east of Quimby Rd. as a candidate for these funds.

Summary of Improvements

Project improvements to the Tully Road Corridor are as follows (see Figure 10):

Required Transportation Improvements

- Add a second left-turn lane to the southbound approach to the *King Road / Tully Road* intersection. Add a separate right-turn lane to the eastbound approach.
- Add a second left-turn lane to each of the four approaches to the *White Road / Tully Road* intersection. Add a third through lane to the northbound, southbound and eastbound approaches. The

above modifications would eliminate the separate right-turn lanes on the eastbound and westbound approaches.

- Construct an auxiliary lane on U.S. 101 in the southbound direction between the Tully Road and Capitol Expressway interchanges.
- Reconfigure the *U.S. 101 / Tully Road* interchange, converting the interchange from a full cloverleaf design to a partial cloverleaf design (eliminating the two existing loop off-ramps).
- Install a traffic signal at the *Ruby Avenue / Tully Road* intersection.

Recommended Transportation Amenities

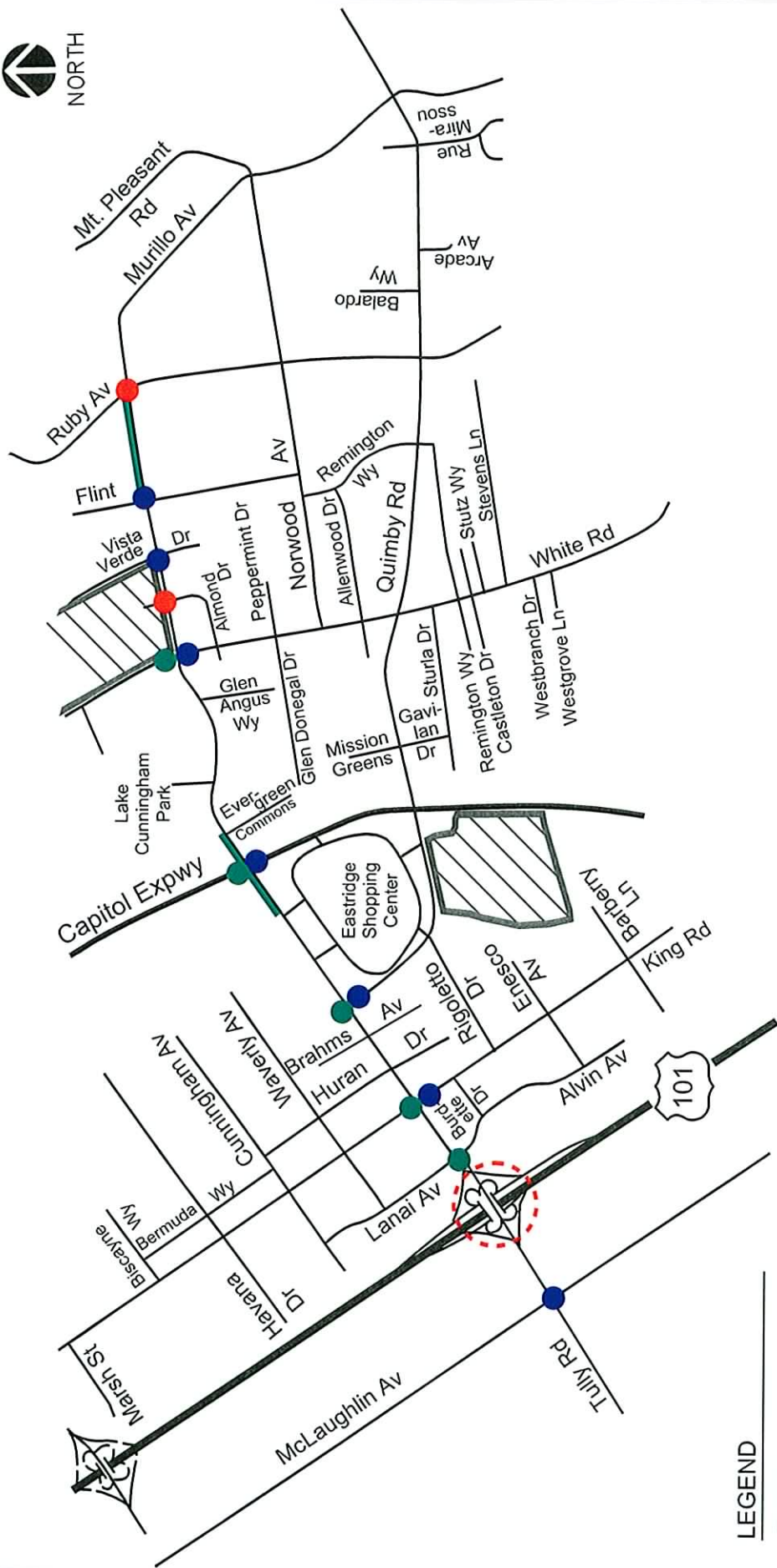
- Lengthen the westbound left turn pocket at the *Capitol Expressway and Tully Road* intersection. Storage for the southbound left turn would be inadequate under project conditions. It may or may not be possible to extend the southbound left turn pocket depending on the future LRT design on Capitol Expressway.
- Lengthen the northbound left-turn pocket by 200 feet at the *Quimby Road and Tully Road* intersection. Lengthen the eastbound left-turn pocket by 160 feet. Replace the existing traffic signal controller with an eight-phase controller using protected left turns.
- Lengthen the eastbound left-turn pocket by 40 feet at the *Flint Avenue and Tully Road* intersection.
- Install ITS camera systems at the intersections of *Lanai Way and Tully Road*, *King Road and Tully Road*, *Quimby Road and Tully Road*, *Capitol Expressway and Tully Road*, *White Road and Tully Road*. Install conduit, communication cable, and wireless interconnects as appropriate.
- Consider use of EEHVS miscellaneous transportation improvements funds to install bike lanes on *Tully Road* east of Quimby Road.
- Consider a study of potential weekend traffic signal coordination on *Tully Road*.

Mitigation from EIR

- Add an exclusive northbound right turn lane at the *McLaughlin Avenue and Tully Road* intersection.

Required as Part of Site Development

- Install a traffic signal at the *Almond Drive and Tully Road* intersection.
- Install an S-median at the *Vista Verde Drive and Tully Road* intersection.



LEGEND

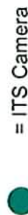


= Project Site



= Future Extension

Study Intersections



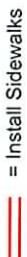
= ITS Camera



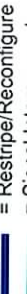
= Intersection Modification



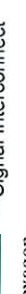
= New Signal



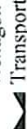
= Install Sidewalks



= Restripe/Reconfigure



= Signal Interconnect



= Interchange Improvement

Figure 10

TULLY ROAD CORRIDOR IMPROVEMENTS

Evergreen • East Hills Vision Strategy

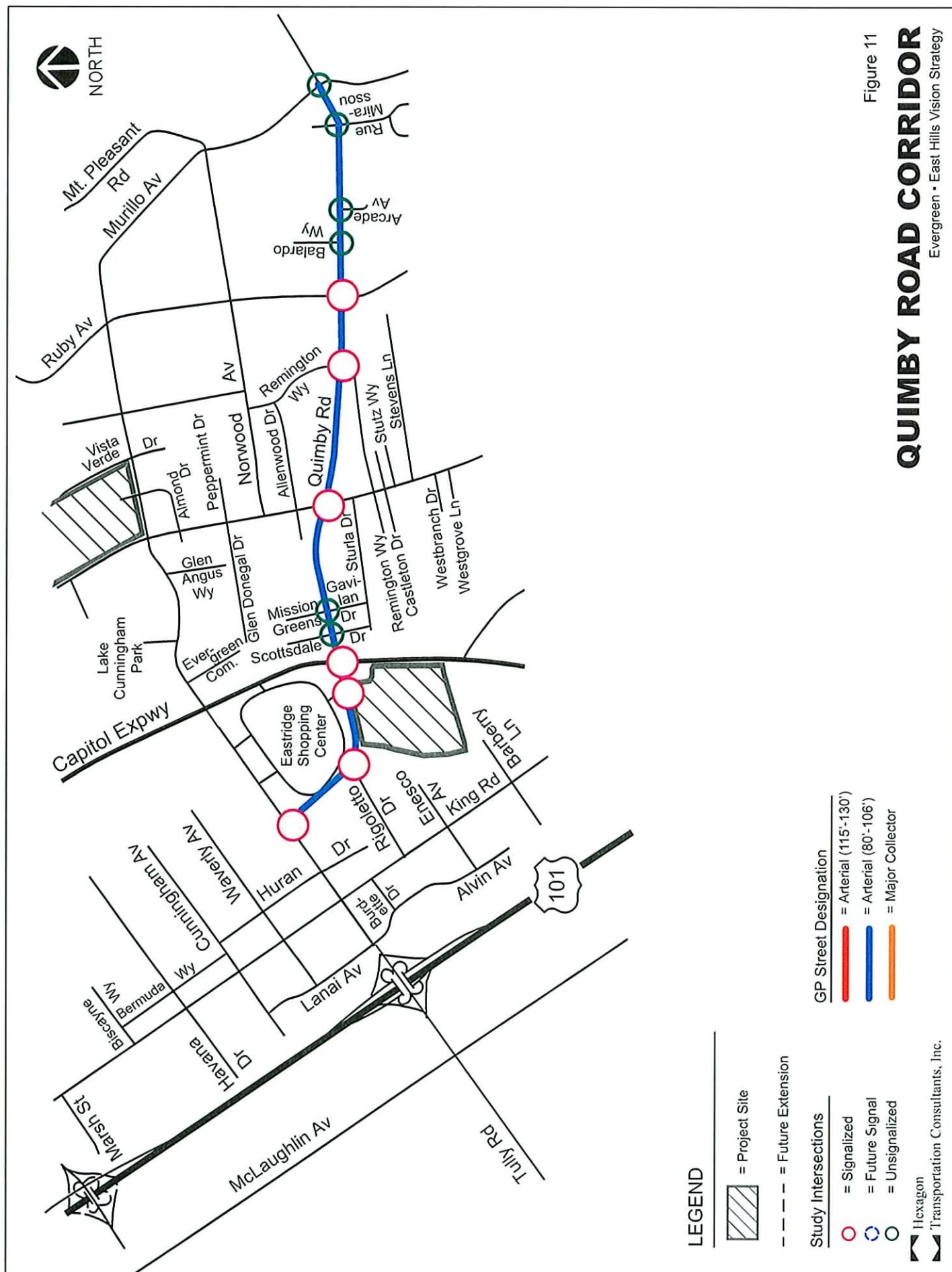
5.

Quimby Road Corridor

This chapter describes the transportation system in the Quimby Road Corridor, including roadway cross-section, signalized and unsignalized intersection operations, intersection queueing, and pedestrian and bicycle facilities. The Quimby Road Corridor in the Evergreen • East Hills area extends from the Quimby Road / Tully Road intersection eastward approximately two miles to its intersection with Murillo Avenue (Figure 11), providing access to commercial areas, housing areas, the new Arcadia Property project, and two schools: Quimby Oak Middle School on Quimby Road near Remington Way, and Evergreen Valley High School at Ruby Avenue and Quimby Road.

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Roadway Cross-Section

Quimby Road is a designated four-lane arterial from Tully Road to Murillo Avenue. Quimby Rd. is built with four lanes with a raised median from Tully Road to Capitol Expressway. From Capitol Expressway to White, Quimby Road has four lanes with a center two-way turn lane. Quimby Road has a width of approximately 66 feet for its length from White Road to Murillo Ave. Starting from White Road, Quimby Rd. is striped for four lanes east to Davidwood Way. Then it is striped as a two-lane road with center two-way left turn lane through the intersection of Remington Way to Ruby Avenue. From Ruby Avenue and across the frontage of Evergreen Valley High School, Quimby is again striped as a four-lane road with left turn pockets. East of Evergreen Valley High School to Murillo, Quimby is again striped as a two-lane road, with 45 feet of width in the eastbound direction and 21 feet in the westbound direction. Signalized intersections occur at White Road, Remington Way, and Ruby Avenue.

Field observations show that long queues form at the intersection of Quimby Road and Remington Way because Quimby is striped for four lanes in most places but only two lanes at Remington. The 66 feet of width provides sufficient room for a standard cross-section of four lanes with turn pockets at intersections. Therefore, it is recommended that the two-lane sections of Quimby Road be restriped to provide four lanes. This restriping will require a signal modification at Remington Way and Quimby Rd.

Traffic Operations

This section describes existing and future levels of service at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections. The intersections studied along the Quimby Road Corridor are displayed in Figure 11 and are as follows:

Signalized Intersections Analyzed

- *Quimby Road and Tully Road*
- *Quimby Road and Rigoletto Drive*
- *Quimby Road and Eastridge Shopping Center Driveway*
- *Capitol Expressway and Quimby Road*
- *White Road and Quimby Road*
- *Remington Way and Quimby Road*
- *Ruby Avenue and Quimby Road*

Unsignalized Intersections Analyzed

- *Scottsdale Drive and Quimby Road*
- *Gavilan Drive and Quimby Road*
- *Balardo Way and Quimby Drive*
- *Arcade Avenue and Quimby Road*
- *Rue Mirassou and Quimby Road*
- *Murillo Avenue and Quimby Road*

Planned / Background Improvements

The following improvement is planned and funded under background conditions and will occur with other, previously approved projects in Evergreen.

LRT Expansion. The Capitol Expressway Light Rail Project is included in the study as a background improvement. The LRT project will necessitate removal of the HOV lanes on Capitol Expressway, leaving three mixed-flow lanes in each direction at the Capitol Expressway and Quimby Road intersection.

Required Transportation Improvements

The proposed project includes numerous improvements to the surrounding transportation network including improvements to freeways, expressways and local streets. There is one required and funded new traffic signal, described in a following section below. The following improvements in the Quimby Road Corridor would also be fully funded by the project:

Intersection Improvements

Project-sponsored improvements at signalized study intersections are described below.

Capitol Expressway / Quimby Road. Add a second left-turn lane on the eastbound approach. All work will occur within the existing right-of-way.

White Road / Quimby Road. Add a second left-turn lane to each of the four approaches. Add a third through lane to the northbound and southbound approaches. All work will occur within the existing right-of-way.

Project Volumes

Turning movement volumes under project conditions at studied intersections in the corridor are shown in Figure 12.

Level of Service Analysis

The level of service analysis shows that the intersection of Quimby Road and Capitol Expressway operates at LOS E under existing conditions and would degrade to LOS F with the project during the PM peak hour (see Table 11). The other signalized intersections along Quimby Road are expected to operate at LOS D or better.

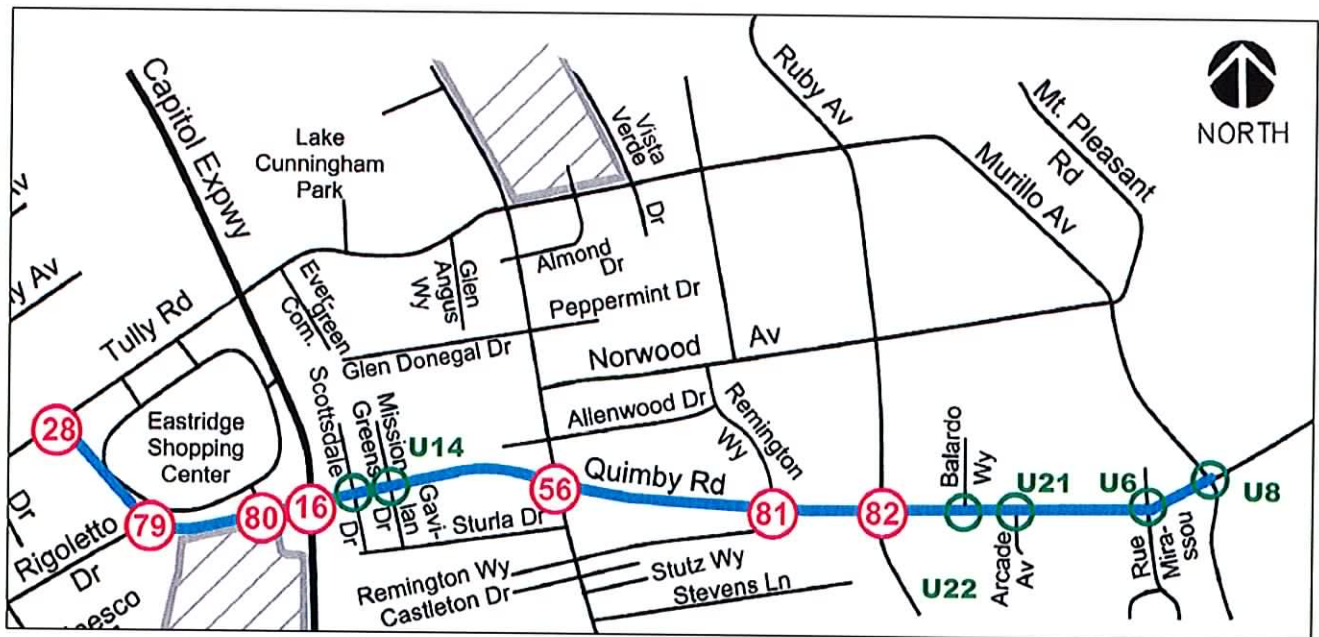
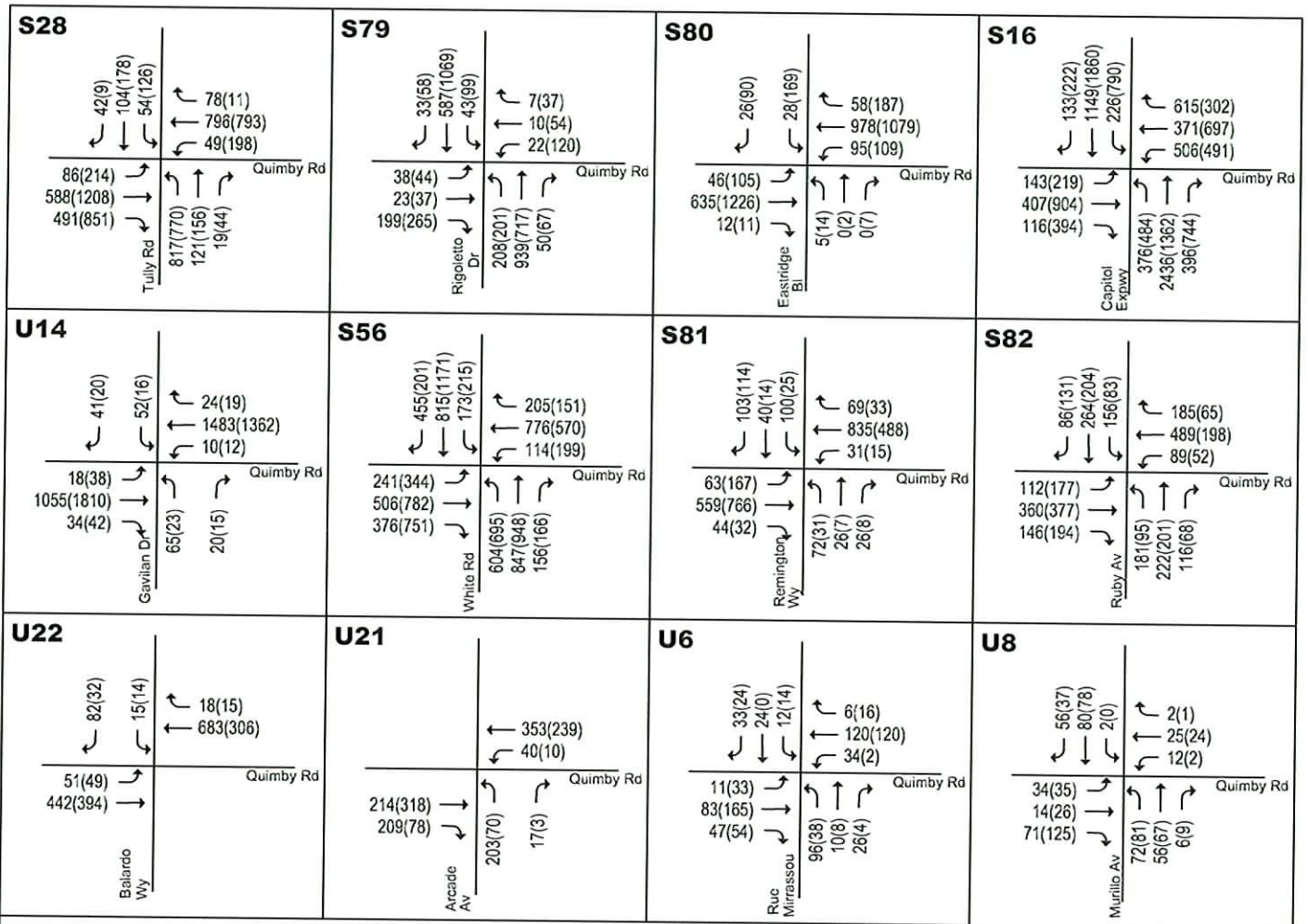


Figure 12

Legend

XX(X) = AM(PM) Peak-Hour Volumes

Hexagon

Transportation Consultants, Inc.

QUIMBY ROAD PROJECT TRAFFIC VOLUMES SCENARIO V

Evergreen • East Hills Vision Strategy

Table 11
Quimby Road Corridor Level of Service Analysis

Intersection	Existing				Background				Project V			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Tully Rd. and Quimby Rd.	34.4	C	45.1	D	34.0	C	46.7	D	33.4	C	49.1	D
Rigoletto Dr. and Quimby Rd.	31.3	C	34.6	C	33.7	C	35.8	D	30.4	C	37.1	D
Eastridge Boulevard and Quimby Rd.	15.8	B	23.1	C	16.6	B	23.7	C	15.7	B	22.0	C
Capitol Expwy. And Quimby Rd.	42.8	D	57.0	E	45.8	D	77.8	E	70.8	E	122.9	F
White Rd. and Quimby Rd.	37.3	D	40.2	D	41.9	D	45.7	D	34.5	C	36.8	D
Remington Way and Quimby Rd.	18.5	B	14.5	B	19.4	B	16.4	B	19.5	B	16.9	B
Ruby Ave. and Quimby Rd.	31.7	C	28.5	C	32.4	C	31.1	C	33.2	C	30.2	C

Capitol Expressway and Quimby Road

Impact: The addition of project-generated trips during the AM peak hour would cause the intersection level of service to degrade from LOS D under background conditions to LOS E under project conditions. During the PM peak hour, this intersection is expected to operate at LOS E under background conditions. The added trips as a result of the Evergreen • East Hills Vision Strategy would cause the critical-movement delay to increase by four or more seconds and the V/C ratio to increase by .01 or more. Based on the City of San Jose's level of service impact criteria, this constitutes a significant impact.

Mitigation: The significant project impact at this intersection could be mitigated by adding a northbound right-turn lane and an eastbound right-turn lane. This improvement would require roadway widening and the acquisition of approximately two feet of additional right-of-way along Quimby Road on the southwest quadrant and along Capitol Expressway on the southeast quadrant. Based on the City's standards, the proposed improvement would satisfactorily mitigate the project impact.

Queueing

The adequacy of left turn pocket storage was evaluated for three signalized intersections in the corridor. The number of vehicles in queue was calculated using the TRAFFIX queue length software. Queue lengths in feet were calculated assuming 20 feet per vehicle. Table 12 summarizes the queueing findings.

Existing Conditions

The following intersections were observed to have back-ups out of the turn pockets during peak hours.

Capitol Expressway and Quimby Road. During the AM peak hour, the westbound left-turn pocket regularly overflows. The queue takes multiple signal cycles to clear. During the PM peak hour, the

Table 12
Quimby Road Corridor Left-Turn Storage Analysis

Intersection	Peak Hour	Mvmt.	Existing		Background			Project Conditions						
			# Lanes	Storage Per Lane	Proposed # Lanes	Storage Per Lane	Vehicle Queue	Required Storage Per Lane	Proposed Storage		Required Storage			
									# Lanes	Per Lane		Vehicle Queue	Per Lane	
White Road and Quimby Road	AM	SBL	1	240	1	240	7	140	2	240	9	100	Adequate	Small storage deficiency would have minor effect on operations and does not warrant improvement.
	PM	SBL	1	240	1	240	8	160	2	240	11	120	Adequate	
	AM	NBL	1	210	1	210	23	460	2	300	29	300	Adequate	
	PM	NBL	1	210	1	210	25	500	2	300	32	320	Inadequate -	
	AM	EBL	1	220	1	220	12	240	2	220	14	140	Adequate	
	PM	EBL	1	220	1	220	15	300	2	220	19	200	Adequate	
Capitol Expressway and Quimby Road	AM	SBL	2	400	2	400	15	160	2	400	18	180	Adequate	SBL turn pocket may be extended by approximately 100 feet by removing median and landscaping. Further turn pocket lengthening to provide the required queue storage is not feasible due to the NBL turn pocket at Eastridge Mall. Improvements to increase storage are not feasible since it would require additional ROW.
	PM	SBL	2	400	2	400	50	500	2	400	60	600	Inadequate -	
	AM	WBL	2	200	2	200	32	320	2	200	35	360	Inadequate -	
	PM	WBL	2	200	2	200	32	320	2	200	40	400	Inadequate -	
	AM	NBL	2	310	2	310	23	240	2	310	26	260	Adequate	
	PM	NBL	2	310	2	310	31	320	2	310	39	400	Inadequate -	
Quimby Road and Tully Road	AM	EBL	1	180	1	180	1	20	2	280	7	80	Adequate	NBL turn pocket may be extended by approximately 200 feet by removing median and landscaping. Further turn pocket lengthening to provide the required queue storage is not feasible due to the NBL turn pocket at adjacent commercial driveway. EBL turn pocket may be extended by approximately 160 feet by removing median and landscaping.
	PM	EBL	1	180	1	180	6	120	2	280	18	180	Adequate	
	AM	NBL	2	140	2	140	15	160	2	140	33	340	Inadequate -	
	PM	NBL	2	140	2	140	28	280	2	140	48	480	Inadequate -	
	AM	EBL	1	140	1	140	5	120	1	140	6	120	Adequate	
	PM	EBL	1	140	1	140	14	300	1	140	15	300	Inadequate	

southbound left-turn queue occasionally does not clear during the leading left-turn phase (the interval preceding the northbound through phase). However, the queue is fully discharged later in the same cycle during the lagging left-turn phase (the interval following the northbound through phase).

White Road and Quimby Road. In the AM peak hour, the northbound and westbound left-turn pockets often overflow, however all vehicles are served in a single signal cycle. Under the current signal settings, some westbound through traffic occasionally must wait through multiple signal cycles before passing this intersection. In the PM peak hour, the northbound and eastbound left-turn queues occasionally spill out of the turn pockets; however, all queued vehicles are able to clear the intersection in one cycle.

Project Conditions

The following intersections are projected to have left turn queues longer than the existing turn pockets on one or more legs of the intersection.

Quimby Road and Tully Road. The northbound and eastbound left turn pockets are shown to be inadequate under both background and project conditions. The northbound pocket would need to be lengthened by 340 feet under project conditions. 200 feet of lengthening is possible by cutting into the landscaped median. Further lengthening is precluded by an adjacent turn pocket. The eastbound pocket would need to be lengthened by 160 feet under project conditions. This is possible by cutting into the median. The signal at this intersection is an older type using split-phase control. A new eight-phase controller, with protected left turn control, would reduce delays and further alleviate queueing problems at this intersection.

Capitol Expressway and Quimby Road. The northbound, southbound, and westbound left turn pockets would be inadequate under background and project conditions. The westbound pocket cannot be lengthened due to right-of-way constraints. The southbound pocket would need to be lengthened by 200 feet; however, only 100 feet are possible due to an adjacent turn pocket. The northbound pocket can be lengthened the required 90 feet by cutting into the median.

White Road and Quimby Road. The project will increase the number of northbound left turn lanes from one to two. Still a small overflow queue is estimated under project conditions. The overflow is small and is not expected to affect intersection operations.

Unsignalized Intersection Analysis

The unsignalized study intersections were analyzed to see if signalization or other changes to traffic control would be warranted under existing or project conditions. Peak hour signal warrant checks (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were performed at six unsignalized intersections along the Quimby Road Corridor. The peak-hour signal warrant is met at a particular intersection when existing volumes or projected volumes on the major and minor streets reach a defined threshold. Engineering judgment needs to be exercised to determine that a signal would improve the overall safety and operation of the intersection and would not unduly disrupt traffic flow on the major street.

Scottsdale Drive / Quimby Road. This intersection currently meets signal warrants, and the project would add traffic to Quimby Road. A signal should be installed at this intersection (see Table 13). The intersection of Quimby Road and Gavilan Drive also meets signal warrants. However, since the intersections are fairly close together, it would be best to signalize just one and not both. Scottsdale Drive provides better connectivity into the neighborhood, so a signal would be more beneficial at Scottsdale

Drive than at Gavilan Drive. Note that adding a signal at Scottsdale Drive could cause some traffic to shift to Scottsdale that now uses one of the other parallel streets.

Arcade Avenue / Quimby Road. This intersection is projected to not meet signal warrants under project conditions; however, it should be monitored for a change in its status due to increased traffic as development occurs in the area.

Murillo Avenue / Quimby Road. This intersection is projected to not meet signal warrants under project conditions; however, it should be monitored for a change in its status due to increased traffic as development occurs in the area.

Table 13
Quimby Road Corridor Signal Warrants Analysis

Intersection	Existing		Project Scenario V		Recommendations
	AM Peak	PM Peak	AM Peak	PM Peak	
	Warrant Met?	Warrant Met?	Warrant Met?	Warrant Met?	
Scottsdale Drive and Quimby Road	Yes	Yes	Yes	Yes	Install signal
Gavilan Drive and Quimby Road	Yes	Yes	Yes	Yes	Leave as is (2-way stop)
Balardo Way and Quimby Road	No	No	No	No	Leave as is (one-way stop, T)
Arcade Drive and Quimby Road	No	No	No	No	Leave as is (one-way stop, T)
Rue Mirassou and Quimby Road	No	No	No	No	Leave as is (2-way stop)
Murillo Avenue and Quimby Road	No	No	No	No	Leave as is (4-way stop)

ITS Plan

Intelligent Transportation Systems, or ITS, is the use of communications and computer technology to increase the efficiency of signal operations and reduce delays in the system. The City of San Jose has developed an ITS plan for the Evergreen area. The plan calls for traffic surveillance cameras and signal interconnect systems to be installed via cables, conduit, and trunk lines or wireless links where appropriate. Cameras are planned to be added to three intersections within the corridor:

Quimby Road and Tully Road

Capitol Expressway and Quimby Road

White Road and Quimby Road

Quimby Road already has signal interconnect cable between Tully Road and the Eastridge entrance. The plan calls for new conduit and communication cables to be installed on Quimby Road from Capitol Expressway to Scottsdale Drive. The plan also calls for a wireless communication link to be installed on Quimby Road from White Road to Ruby Avenue, to connect the traffic signal controller at the Ruby Ave. and Quimby Rd. intersection to the City's ITS system (see Figure 13). A wireless link is planned in order to minimize the amount of trenching within the public right-of-way at the end of the communication links along the east foothills.

Pedestrian and Bicycle Facilities

The corridor was evaluated for pedestrian and bicycle access. Recommendations for improvement are made where appropriate.

Pedestrians

Quimby Road has sidewalks on both sides of the street for its entire length from Tully Road to Murillo Avenue. Pedestrian activity particularly occurs around the schools. Access to Quimby Oaks Middle School is aided by the signal at Remington Way. Access to Evergreen Valley High School is aided by the signal at Quimby Road and Ruby Avenue.

Bicycles

Quimby Road currently does not have bike lanes. The City of San Jose Bicycle network Planning Map shows Quimby Road as a location for future bike facilities. The EEHVS may fund either wholly or partially miscellaneous transportation improvement projects at to-be-determined locations in the Evergreen • East Hills area. Such improvements may include new bike lanes. The City may want to consider bike lanes on Quimby Road as a candidate for these funds.

Summary of Improvements

Project improvements to the Quimby Road Corridor are as follows (see Figure 13):

Required Transportation Improvements

- Add a second left-turn lane on the eastbound approach at the *Capitol Expressway / Quimby Road* intersection.
- Add a second left-turn lane to each of the four approaches, and add a third through lane to the northbound and southbound approaches at the *White Road / Quimby Road* intersection.
- Install a traffic signal at the *Scottsdale Drive and Quimby Road* intersection.

Recommended Transportation Amenities

- Lengthen the northbound left turn pocket 200 feet at the *Quimby Road / Tully Road* intersection. Lengthen the eastbound left turn pocket 160 feet. Replace the existing traffic signal controller with an eight-phase controller using protected left turns.
- Restripe *Quimby Road* to four lanes along the sections that currently are striped for two lanes (Winwood Way to Ruby Avenue and Arcade Drive to Murillo Avenue). This will require a signal modification at *Remington Way and Quimby Road*.
- Lengthen the northbound left turn pocket 90 feet at the *Capitol Expressway / Quimby Road* intersection. Lengthen the southbound turn pocket by 100 feet.

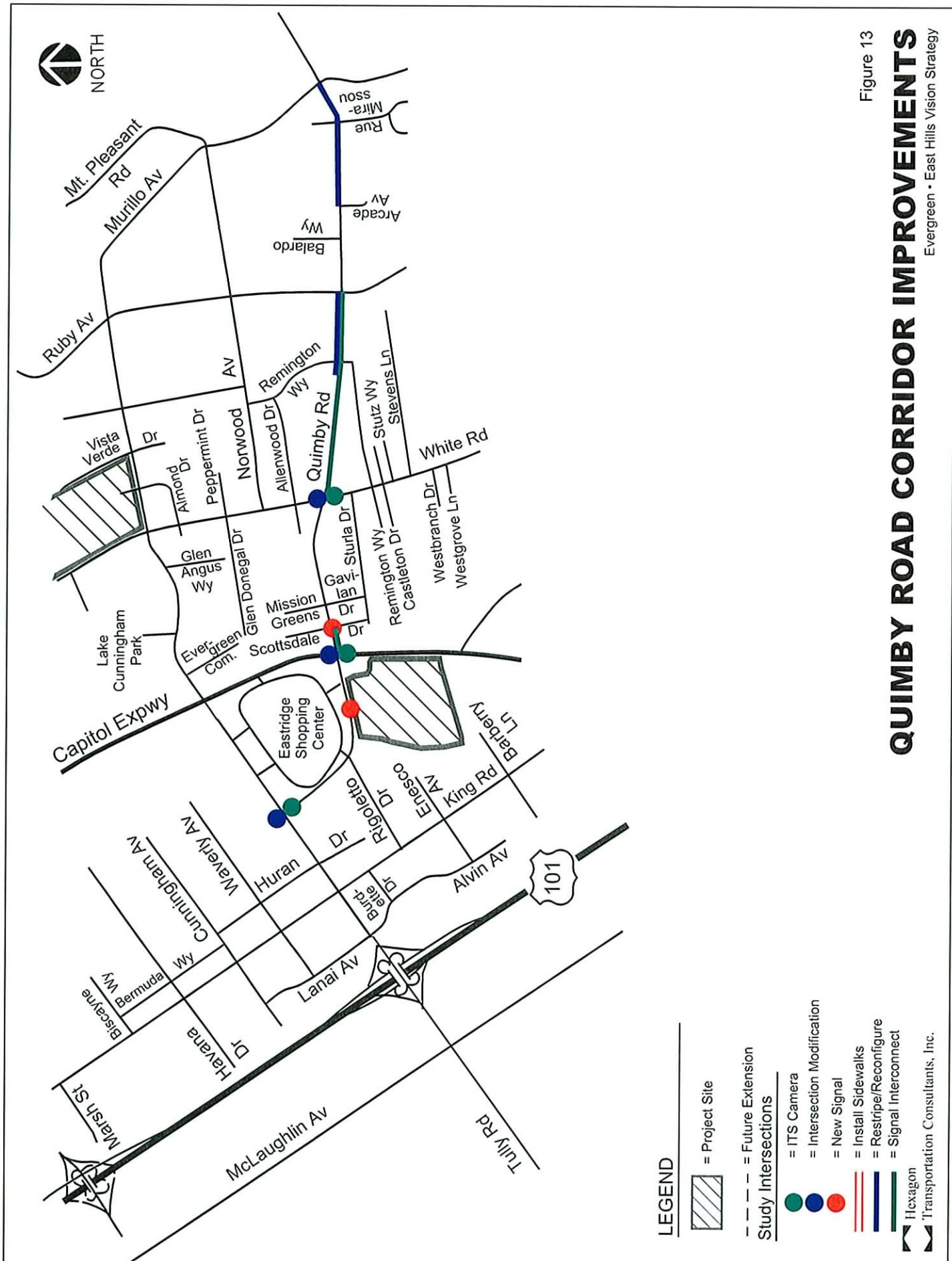
- Install ITS traffic camera systems at the intersections of *Quimby Road and Tully Road*, *Capitol Expressway and Quimby Road*, and *White Road and Quimby Road*. Install communication cables, conduit and wireless links as appropriate.
- Consider using the EEHVS miscellaneous transportation improvement funds to add bike lanes to *Quimby Road*.
- Consider a study of potential weekend traffic signal coordination on *Quimby Road*.

Mitigation from EIR

- At the *Capitol Expressway and Quimby Road* intersection add a northbound right-turn lane and an eastbound right turn lane. This improvement would require roadway widening and the acquisition of approximately two feet of additional right of way along Quimby Road on the southwest quadrant and along Capitol Expressway on the southeast quadrant.

Required as Part of Site Development

- Install a traffic signal on *Quimby Road* to provide access to the Arcadia Property.



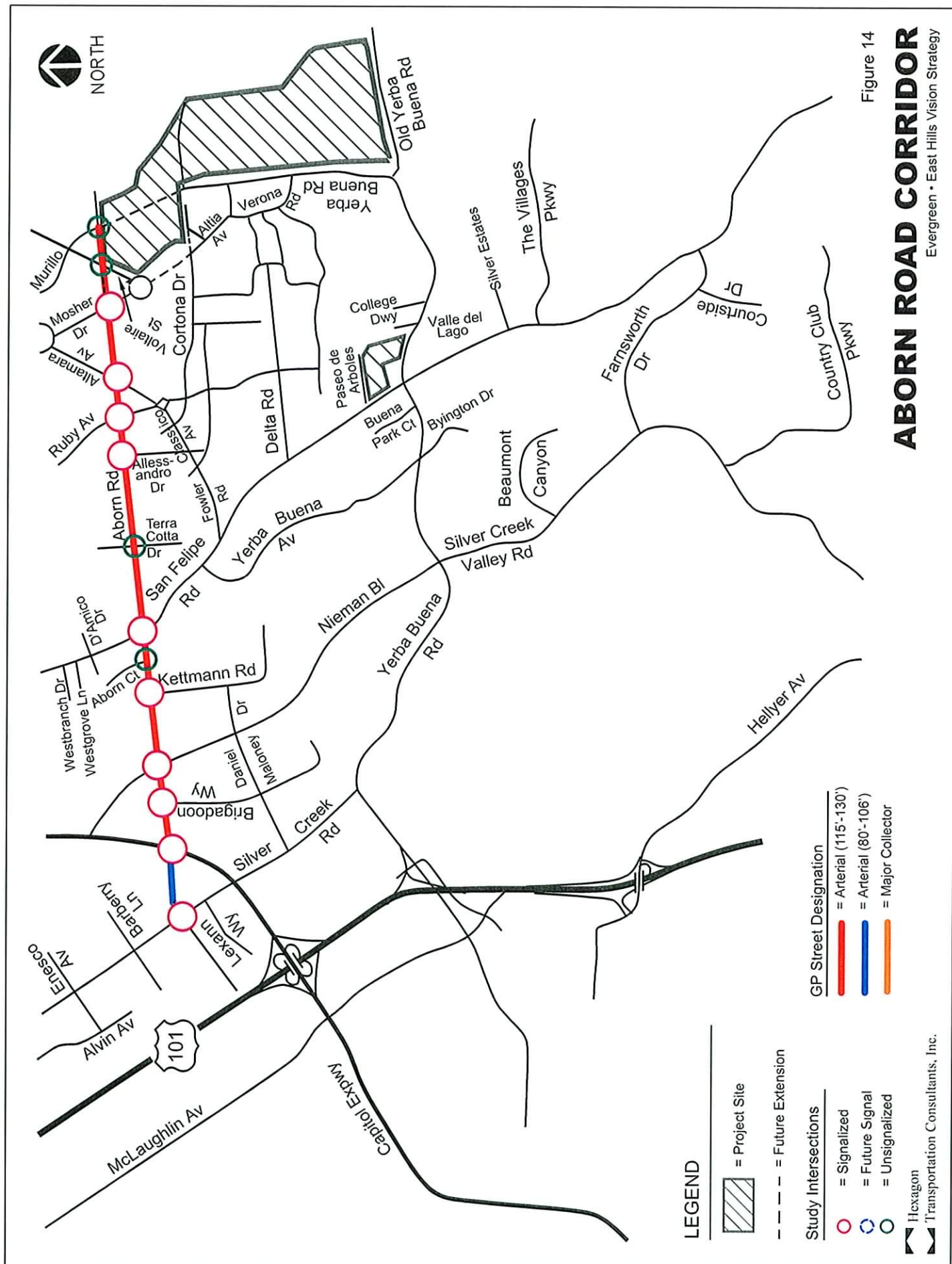
6.

Aborn Road Corridor

This chapter describes the transportation system in the Aborn Road Corridor, including roadway cross-section, signalized and unsignalized intersection operations, intersection queueing, and pedestrian and bicycle facilities. The Aborn Road Corridor in the Evergreen • East Hills area extends from the King Road and Aborn Road intersection eastward approximately three miles to its intersection with Murillo Avenue (Figure 14), providing access to commercial areas, housing areas, and at its eastern end to the proposed Berg / IDS / Legacy Properties development.

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Roadway Cross-Section

Aborn Road is a designated four-lane arterial from King Road to Capitol Expressway and a six-lane arterial from Capitol Expressway to Murillo Avenue. Between King Road and Capitol Expressway, Aborn Road has four lanes with a median and no bicycle lanes. East of Capitol Expressway, Aborn Road widens to a six-lane cross section, with a median and bicycle lanes until White Road, where it loses the bicycle lanes. East of White Road, Aborn Road has six lanes and a median, but no bike lanes. This configuration continues to Altamara Ave., where Aborn Rd. becomes a five-lane road, with two lanes westbound, and three lanes eastbound. At Mosher Drive Aborn Rd. becomes a four-lane road with two lanes in each direction. The City may wish to pursue a General Plan amendment to downgrade the section of Aborn Road east of Mosher Drive from a six-lane arterial to a four-lane arterial.

Traffic Operations

This section describes existing and future levels of service and queueing at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections. The intersections studied along the Aborn Road Corridor are displayed in Figure 14 and are as follows:

Signalized Intersections Analyzed

- *King Road and Aborn Road*
- *Capitol Expressway and Aborn Road*
- *Brigadoon Way and Aborn Road*
- *Nieman Boulevard and Aborn Road*
- *Kettmann Road and Aborn Road*
- *San Felipe Road and Aborn Road*
- *Allessandro Drive and Aborn Road*
- *Ruby Avenue and Aborn Road*
- *Altamara Avenue and Aborn Road*
- *Mosher Drive and Aborn Road*

Unsignalized Intersections Analyzed

- *Aborn Court and Aborn Road*
- *Terra Cotta Drive and Aborn Road*
- *Voltaire Street and Aborn Road*
- *Murillo Avenue and Aborn Road*

Planned / Background Improvements

The following improvements are planned and funded under background conditions and will occur with other, previously approved projects in Evergreen.

Capitol Expressway and Aborn Road. Add a second eastbound left-turn lane and a third westbound left-turn lane. (Developer funded)

Kettman Road and Aborn Road. The Evergreen Branch Library, which is currently under reconstruction, will have access to Aborn Road via a new driveway located directly opposite Kettman Road. Thus, the Kettman Road / Aborn Road intersection will become a full four-legged intersection. The north approach (library driveway) will include one left-turn lane and one shared through/right-turn lane. (Library Bond Improvement Project.)

Required Transportation Improvements

The proposed project includes numerous improvements to the surrounding transportation network including improvements to freeways, expressways, and local streets. The following improvements in the Aborn Road Corridor would be fully funded by the project:

Intersection Improvements

Project-sponsored improvements at signalized study intersections are described below.

Capitol Expressway / Aborn Road. Add a second left-turn lane on the northbound approach. All work will occur within the existing right-of-way. The existing HOV lanes on Capitol Expressway between U.S. 101 and Nieman Blvd. will be converted to mixed flow lanes. Capitol Expressway will have four through lanes and a separate right turn lane in each direction at Aborn Rd. and Capitol Expressway.

White Road / San Felipe Road / Aborn Road. Add a second left-turn lane to the westbound approach. Add a third through lane to the southbound approach. All work will occur within the existing right-of-way.

Ruby Avenue / Aborn Road. Modify the phasing of the existing traffic signal to provide protected left turns on the northbound and southbound approaches.

Project Volumes

Turning movement volumes under project conditions at studied intersections in the corridor are shown in Figure 15.

Level of Service Analysis

The results show that all of the signalized intersections would operate at LOS D or better under existing and project conditions (see Table 14).

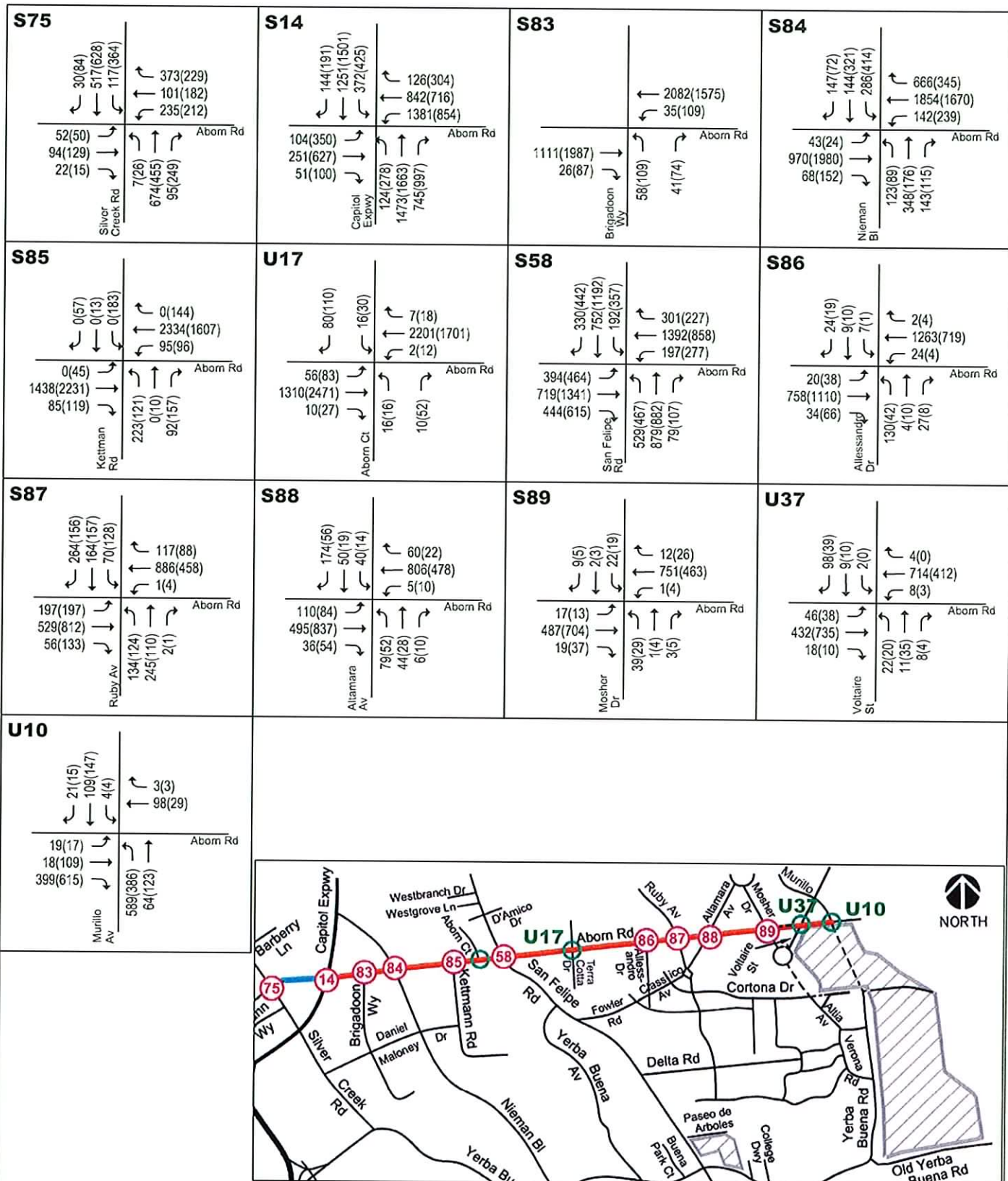


Figure 15

Legend

XX(XX) = AM(PM) Peak-Hour Volumes

Hexagon

Transportation Consultants, Inc.

ABORN ROAD PROJECT TRAFFIC VOLUMES SCENARIO V

Evergreen • East Hills Vision Strategy

Table 14

Aborn Road Corridor Level of Service Analysis

Intersection	Existing				Background				Project V			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
King Rd and Aborn Rd.	22.7	C	26.7	C	24.5	C	28.8	C	23.8	C	28.0	C
Capitol Expwy. And Aborn Rd.	41.9	D	48.0	D	39.8	D	50.2	D	42.0	D	52.5	D
Brigadoon Way and Aborn Rd.	7.8	A	10.1	B	6.1	A	10.0	B	6.6	A	9.2	A
Nieman Blvd. and Aborn Rd.	27.7	C	31.2	C	45.2	D	31.7	C	30.4	C	38.7	D
Kettmann Rd. and Aborn Rd.	20.1	C	19.0	B	16.9	B	29.1	C	19.3	B	33.9	C
San Felipe Rd. and Aborn Rd.	37.5	D	42.1	D	42.8	D	44.4	D	39.9	D	45.6	D
Allessandro Dr. and Aborn Rd.	20.2	C	14.4	B	14.5	B	8.7	A	15.6	B	10.3	B
Ruby Ave. and Aborn Rd.	23.6	C	22.8	C	19.9	B	20.8	C	30.6	C	29.7	C
Altamara Ave. and Aborn Rd.	28.9	C	24.8	C	22.4	C	13.7	B	22.9	C	16.3	B
Mosher Dr. and Aborn Rd.	13.7	B	14.6	B	4.0	A	3.3	A	5.4	A	4.9	A

Queueing

The adequacy of left turn pocket storage was evaluated for three signalized intersections in the corridor. The number of vehicles in queue was calculated using the TRAFFIX queue length software. Queue lengths in feet were calculated assuming 20 feet per vehicle. Table 15 summarizes the queueing findings.

Existing Conditions

The following intersections were observed to have back-ups out of the turn pockets during peak hours.

Capitol Expressway and Aborn Road. In the AM peak hour, the westbound left-turn queue regularly spills out of the turn pocket during each signal cycle blocking the adjacent through lane. All vehicles clear during each signal cycle. In the PM peak hour the southbound left-turn queue regularly spills out of the turn pocket but all vehicles clear during each signal cycle.

San Felipe Road and Aborn Road. Northbound traffic fills the left-turn turn pocket during the AM peak hour and occasionally spills into the adjacent through lane. The queue clears during each signal cycle. During the PM peak hour, traffic fills the eastbound left-turn turn pocket and spills into the adjacent through lane. During each signal cycle the left-turn queue is fully dissipated. Turning movements in and out of the gas station on the southwest corner often slow or block eastbound traffic turning right onto southbound San Felipe Road. The right-turn queue that forms does not clear during some cycles. The queue blocks access to the shopping center driveways on the south side of Aborn Road.

Project Conditions

The following intersections are projected to have left turn queues longer than the existing turn pockets on one or more legs of the intersection.

Table 15
Aborn Road Corridor Left-turn Storage Analysis

Intersection	Peak Hour	Mvmt.	Existing			Background			Project Conditions					
			# Lanes	Storage Per Lane	Proposed # Lanes	Storage Per Lane	Vehicle Queue	Required Storage Per Lane	Proposed Storage		Required Storage Per Lane	Comments on whether Proposed Left-Turn Storage Fulfills Length Requirements.		
									# Lanes	Storage Per Lane				
White Road and Aborn Road	AM	SBL	2	180	2	180	36	360	2	180	12	120	Adequate	The required queue storage could be provided by removing median and landscaping shown in White Rd Corridor Alt. A, (entails elimination of SBL at adjacent commercial driveway n/o Aborn.
	PM	SBL	2	180	2	180	18	180	2	180	24	240	Inadequate	
	AM	NBL	2	200	2	200	26	260	2	200	29	300	Inadequate	NBL turn pocket may be extended to provide the necessary storage by removing median and landscaping.
	PM	NBL	2	200	2	200	25	260	2	200	30	300	Inadequate	
Nieman Boulevard and Aborn Road	AM	SBL	1	200	1	200	30	600	1	200	16	320	Inadequate	SBL turn pocket may be extended by approximately 180 feet by removing median and landscaping. Further turn pocket lengthening to provide the required queue storage is not feasible without eliminating SBL into Everdale Drive.
	PM	SBL	1	200	1	200	18	360	1	200	25	500	Inadequate	
Capitol Expressway and Aborn Road	AM	WBL	2	270	3	500	45	300	3	500	73	500	Adequate	
	PM	WBL	2	270	3	500	56	380	3	500	63	420	Adequate	

Nieman Boulevard and Aborn Road. The turn pocket storage for southbound left turns is shown to be inadequate under background and project conditions. The southbound left turn pocket can be lengthened by removing the landscaped median. Then queued cars would be able to utilize the center two-way left turn lane.

San Felipe Road and Aborn Road. The left turn queue in the northbound direction is estimated to exceed the storage length under background and project conditions. The turn pocket could be lengthened by cutting into the landscaped median. In the southbound direction, the queue is expected to exceed the planned left turn pocket length under project conditions. In order to provide the estimated required storage for southbound left turns from White Road to Aborn Road, the shopping center left turn lane would need to be relocated.

Unsignalized Intersection Analysis

The unsignalized study intersections were analyzed to see if signalization or other changes to traffic control would be warranted under existing or project conditions. Peak hour signal warrant checks (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were performed at four unsignalized intersections along the Aborn Road Corridor. The peak-hour signal warrant is met at a particular intersection when existing volumes or projected volumes on the major and minor streets reach a defined threshold. Engineering judgment needs to be exercised to determine that a signal would improve the overall safety and operation of the intersection and would not unduly disrupt traffic flow on the major street.

Table 16
Aborn Road Corridor Signal Warrants Analysis

Intersection	Existing		Project Scenario V		Recommendations
	AM Peak	PM Peak	AM Peak	PM Peak	
	Warrant Met?	Warrant Met?	Warrant Met?	Warrant Met?	
Aborn Court and Aborn Road	Yes	Yes	Yes	Yes	Install S-median island
Terra Cotta Drive and Aborn Road	Yes	Yes	Yes	Yes	Install S-median island
Voltaire Street and Aborn Road	No	No	No	No	Leave as is (2-way stop)
Murillo Avenue / Yerba Buena Road and Aborn Road	No	No	Yes	Yes	Install signal

Aborn Court / Aborn Road and Terra Cotta Drive / Aborn Road. These intersections both meet signal warrants under existing conditions (see Table 16). However, detailed analysis shows that they would function well without signals, and the signals would needlessly delay traffic on Aborn Road. For safety reasons, it is recommended to install “S” medians, which allow left turns from Aborn into the side street but block outbound left turns.

Murillo Avenue / Aborn Road. This intersection would meet signal warrants with the project (see Table 16). A signal should be installed at this intersection as a required access improvement for the Berg / IDS / Legacy Properties development.

ITS Plan

Intelligent Transportation Systems, or ITS, is the use of communications and computer technology to increase the efficiency of signal operations and reduce delays in the system. The City of San Jose has developed an ITS plan for the Evergreen area. The plan calls for traffic surveillance cameras and signal interconnect systems to be installed via cables, conduit, and trunk lines or wireless links where appropriate. Cameras are planned to be added to four intersections within the corridor:

King Road and Aborn Road

Capitol Expressway and Aborn Road

White Road and Aborn Road

Ruby Avenue and Aborn Road

A signal interconnect cable currently exists on Aborn Road from King Road to White Road. The ITS plan calls for a wireless communication link will be installed on Aborn Road from White Road to Murillo Avenue, in order to minimize the amount of trenching within the public right-of-way at the end of the communication links along the east foothills (see Figure 16).

Pedestrian and Bicycle Facilities

The corridor was evaluated for pedestrian and bicycle access. Recommendations for improvement are made where appropriate.

Pedestrians

Sidewalks currently exist on both sides of Aborn Road for its entire length.

Bicycles

Bike lanes exist on Aborn Road from Capitol Expressway to White Road. No additional bike lanes are planned on Aborn Road according to the City of San Jose Bicycle Network Planning Map.

Summary of Improvements

Project improvements to the Aborn Road Corridor are as follows (see Figure 16):

Required Transportation Improvements

- Add a second left-turn lane on the northbound approach at the *Capitol Expressway / Aborn Road* intersection. Add a fourth through lane in both directions on Capitol Expressway.
- Modify the phasing of the existing traffic signal to provide protected left turns on the northbound and southbound approaches at the *Ruby Avenue / Aborn Road* intersection.

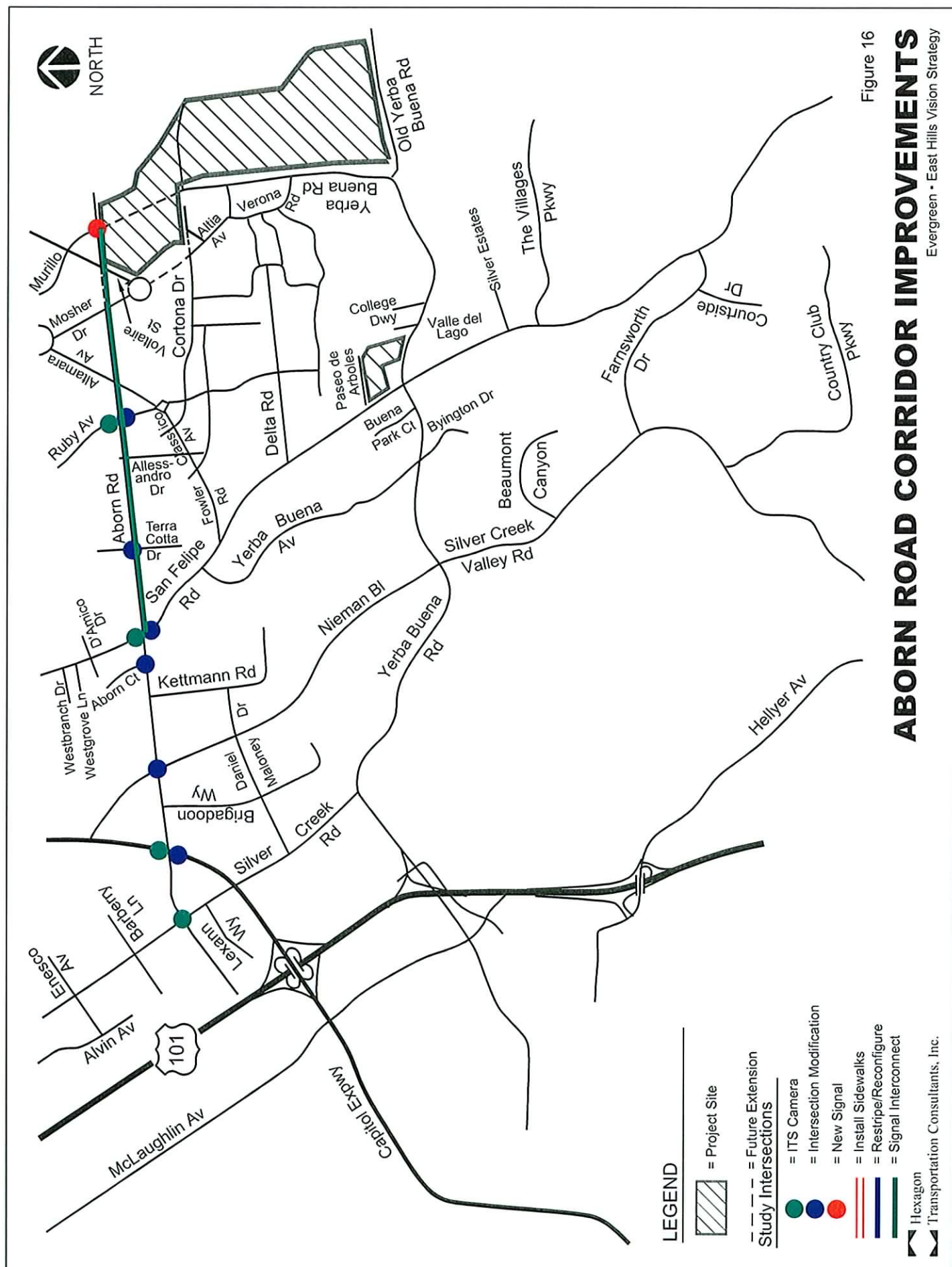
- Add a second left-turn lane to the westbound approach of the *White Road / San Felipe Road / Aborn Road* intersection. Lengthen the northbound and southbound left-turn pockets. Add a third through lane to the southbound approach.

Recommended Transportation Amenities

- Extend the southbound left turn pocket at *Nieman Boulevard and Aborn Road*.
- Install an S-median at the *Aborn Court / Aborn Road* intersection.
- Install an S-median at the *Terra Cotta Drive / Aborn Road* intersection.
- Install ITS traffic camera systems at the intersections of *King Road and Aborn Road*, *Capitol Expressway and Aborn Road*, *White Road and Aborn Road*, and *Ruby Avenue and Aborn Road*. Install communication cables, conduit and wireless links as appropriate.
- Consider a study of potential weekend traffic signal coordination on *Aborn Road*.

Required as Part of Site Development

- Install a traffic signal at the *Murillo Avenue / Aborn Road* intersection.



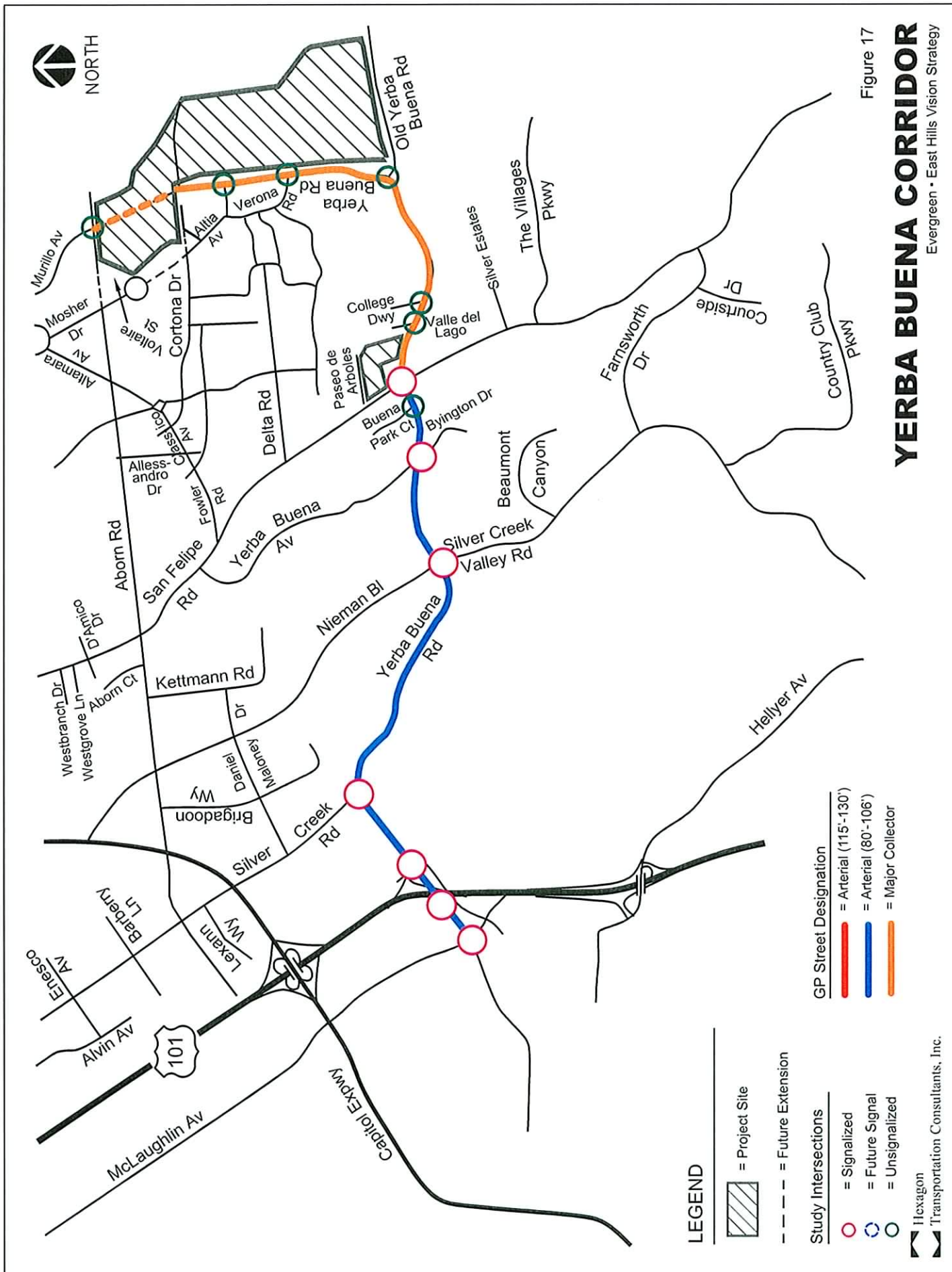
7.

Yerba Buena Road Corridor

This chapter describes the transportation system in the Yerba Buena Road Corridor, including roadway cross-section, signalized and unsignalized intersection operations, intersection queueing, freeway interchange operations, and pedestrian and bicycle facilities. The Yerba Buena Road Corridor in the Evergreen • East Hills area extends from the McLaughlin Avenue and Yerba Buena Road intersection eastward approximately 4.7 miles to its current terminus at an intersection with Fowler Rd. It provides access to many housing areas as well as two of the new projects: the Berg / IDS / Legacy Properties and the Evergreen Valley College Property (Figure 17).

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Roadway Cross-Section

From McLaughlin Avenue to San Felipe Road, *Yerba Buena Road* is a General Plan-designated four lane arterial. In conformance with the designation it is built with four lanes and a median. East of San Felipe Road, Yerba Buena Road has an existing General Plan designation of four-lane Major Collector. The EEHVS includes a proposal to downgrade the General Plan designation of Yerba Buena Road to a two-lane collector from Old Yerba Buena Road to Aborn Road. Under existing conditions, Yerba Buena Road is fully built as far as Verona Road. It is striped with four lanes as far as the entrance to the existing campus industrial site. From there to Verona Road, it is a wide two lane road. North of Verona Road, only a half street has been built, and Yerba Buena stops at Fowler. With the proposed Berg / IDS / Legacy Properties development, Yerba Buena would be extended to Aborn Road. However, the proposed alignment departs from the General Plan alignment at Verona Road and curves eastward. The reason for the realignment is to create a buffer from the existing residential development. Traffic forecasts indicate that a two-lane road, one lane in each direction, could accommodate the projected traffic volume. Left turn pockets would be needed at each intersection. The Berg / IDS / Legacy Properties development proposes to use a median on Yerba Buena Road to partially address storm run-off requirements. Therefore, the exact width of the roadway and right-of-way will be determined in conjunction with Public Works staff at a subsequent design phase. Nevertheless, the proposed downgrade in designation to two lanes is consistent with the expected usage of the road.

Traffic Operations

This section describes existing and future levels of service and queueing at signalized intersections. It also includes an analysis of traffic control options for unsignalized intersections and a description of traffic operations at the Yerba Buena / U.S. 101 interchange. The intersections studied along the Yerba Buena Road Corridor are displayed in Figure 17 and are as follows:

Signalized Intersections Analyzed

- *McLaughlin Avenue and Yerba Buena Road*
- *Yerba Buena Road and Silver Creek Road*
- *Nieman Boulevard and Yerba Buena Road*
- *Yerba Buena Avenue / Byington Drive and Yerba Buena Road*
- *San Felipe Road and Yerba Buena Road*

Unsignalized Intersections Analyzed

- *Buena Park Court and Yerba Buena Road*
- *Valle del Lago and Yerba Buena Road*
- *Evergreen College Driveway and Yerba Buena Road*
- *Yerba Buena Road and Old Yerba Buena Road*
- *Yerba Buena Road and Verona Road*
- *Yerba Buena Road and Altia Avenue*
- *Yerba Buena Road and Aborn Road*